# THE BUILDER
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# THE BUILDER

A JOURNAL FOR THE ARCHITECT AND CONSTRUCTOR.

*WITH WHICH IS INCORPORATED "THE BRITISH ARCHITECT."*

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## WATERLOO BRIDGE

*"The Greeks were so fully in possession of the beautiful in both theory and practice that the objects of its practical expression were taken for granted in writing and in speech—the process by which the people had become possessed of attractive surroundings to the elimination of the unpleasant, the unsuitable, or the ugly, was so natural to them, so obvious and so ordinary, that it had ceased in Plato's time to be a matter to speculate upon."*

WE take this passage from the thoughtful address by Mr. F. R. Hiorns on the "Corporate Spirit in Architecture," read at a recent meeting of the Royal Institute of British Architects, as it appears to have some bearing on the controversy respecting the threatened demolition of Waterloo Bridge and the erection of a new bridge which will "meet the needs of modern traffic requirements by road and river," as recommended by the Special Bridges Committee of the L.C.C. In Waterloo Bridge we have a structure which is claimed to be a national monument of unusual charm erected in commemoration of a great national achievement; and yet we are so little in possession of the beautiful in either theory or practice that it is possible for a great municipal body to accept the recommendation of their Special Committee without a division, and, by pushing on with the construction of a temporary bridge, to hasten the destruction of what most enlightened citizens and many foreigners who come amongst us regard as one of the best examples of bridge construction in the world! And our Councillors can do this while all the time there is ready to hand a well-considered scheme of preservation, which does not appear to have received adequate consideration. If the public or their Parliamentary or municipal representatives were "in possession of the beautiful," there can be no possible doubt that they and all of us would unite to preserve the bridge if possible, and deal with our traffic problems in another way. We know, of course, that the Bridges Committee of the L.C.C. have given careful consideration to the problem, both from the traffic and navigation points of view that they have been advised by their own engineers—who are men of great eminence in their profession—and that they have even taken independent expert advice; but, notwithstanding this, we believe from what we know of the facts that a good case exists for the reconsideration of the whole question.

The influential deputation which waited on the L.C.C. recently, consisting of representatives of the Royal Institute of British Architects, the Town-Planning Institute, the Architecture Club, the London Society, and the Society for the Protection of Ancient Buildings, was informed that nothing would be done until July to demolish the bridge and that in the interval an opportunity would be given to produce evidence which would rebut the opinions of the L.C.C. advisers and convince them that there is some way out of the difficulty. Presumably the evidence we are able to give this week has been put before the Council or individual members already, and we suppose they do not consider it rebuts the opinions of the Council's engineers, but we believe our readers and all enlightened members of the public who study the matter we publish this week will think this evidence sufficiently important to be considered by an impartial and independent body before the final step of demolition is undertaken.

The evidence we refer to is the report presented to the Society for the Protection of Ancient Buildings by Mr. H. H. Dalrymple-Hay, M.Inst.C.E., an engineer of wide experience, especially in underpinning work, and we ask any impartial person who has read this report and considered the method of dealing with the bridge which he advocates whether the L.C.C. are justified in proceeding with the proposed demolition without further consideration, especially in view of the widespread desire to preserve the bridge if possible. The L.C.C. is a body of representatives of the people of London and opposition to their intentions comes from many of those who have elected them, and surely they and all those public-spirited societies who are opposed to the proposed demolition and whose broad-minded views on the amenities of London are second to none have a right to be satisfied that the bridge will not be taken down until an independent inquiry has established whether or not this is the proper course to pursue. The opinion of Mr. Dalrymple-Hay that there are no insuperable difficulties to underpinning and strengthening the foundations of the bridge is, we believe, borne out by other engineers, while some well-known contractors support him, as will be seen from the letters which we give elsewhere. Mr. Dalrymple-Hay's report was presented to the Society for the Protection of Ancient Buildings before the work of erecting the temporary bridge for the L.C.C. had been commenced, but in its bearing on the question of cost the following excerpt still has considerable relevancy:—"By the adoption," he says, "of the proposals outlined above the entire cost of a temporary bridge, the blocking of the river therewith, the pulling down and rebuilding of the existing structure, with the consequent interference with navigation over the entire width of the river would be avoided, and in my view the Council should reconsider the whole question if only from the point of view of economy."

The practical considerations of life cannot, of course, be left out of count in controversies of this kind; they must come well to the forefront of the whole problem, but they must go hand-in-hand with considerations of lasting beauty. We cannot afford to treat a great city like London as though it were only an emporium for commerce. It is the figure-head of Empire, and where we are dealing with matters which affect the general appearance and dignity of the capital of the greatest Empire the world has known we must surely ask ourselves if we can afford to throw away ideals of dignity and beauty. We know we cannot afford to do it. The subject of the best development of London is compounded of the practical and the beautiful, and far be it from us to discount practical values in an age where comfort and ease figure so largely. But the highest and best in life is a something which cannot be reached without the aid of ideality, and surely in an intellectual age like the present we shall not be guilty of limiting our view in the development of a great city within the confines of mere ease and comfort of living. It has been said that the most practical outlook springs from imagination, and we would ask for a little imagination as well as common sense in the further consideration of the problem of Waterloo Bridge.

# NOTES.

**The Medal for London Street Architecture.**

THE jury appointed by the Royal Institute of British Architects to award a medal to the architect who has designed the best street frontage completed during the year 1924 within a radius of four miles from Charing Cross has just completed its task. After careful examination of drawings and photographs of all the buildings which were nominated for the honour, the jury has given its award in favour of the Auctioneers' and Estate Agents' Institute, 29, Lincoln's Inn Fields, W.C., designed by Messrs. Greenaway & Newberry, FF.R.I.B.A. This award will, we believe, give general satisfaction. We could name other buildings erected during the year which have claims to consideration for the distinction, but Messrs. Greenaway & Newberry's building well deserves the commendation it has received.

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**St. Paul's Cathedral.**

THE Architecture Club invited their members to foregather at St. Paul's Cathedral on Tuesday, on the invitation of the Dean and Chapter, in order that they might appreciate, from a personal inspection, some at least of the difficulties and dangers of which we have heard so much of late with regard to the maintenance of the structure in a state of stable equilibrium. This visit was arranged in conjunction with the Royal Institute of British Architects, and frankly this fact proved its undoing. A party of more than fifty assembled at the appointed rendezvous, and this large number introduced some difficulties, as it was deemed impossible to conduct so numerous a party over the actual scaffolding where the defective stonework could have been inspected at close quarters. However, the party were fortunate in having as guide the Clerk of the Works, who was able to give much interesting information. The octagon was inspected at various levels, and the points of weakness which are engaging the attention of the Advisory Committee were duly pointed out. In a large room over the south transept door an interesting series of plans was examined, which clearly demonstrated the concentration of the load on the inner ring of the eight piers of the octagon; this appears to be due mainly to the failure of the lateral points of support and the fracture of the radiating buttresses. In another room this was even more clearly demonstrated by an excellent scale model so arranged that all the details of the structure could be easily grasped, even by the non-technical members of the party.

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**The Difficulty of the Problem.**

IT must be admitted that the result of the visit was to impress on the party the difficulty of the problem, and also a certain amount of doubt was indicated by some of the party as to the result of the methods of grouting, &c., in preserving the stability of the fabric, more especially as this would appear to leave the main problem of restoring the radiating buttresses to their proper function untouched; the grouting, it was thought, will merely consolidate the overloaded piers while adding very considerably to the concentrated weight which the foundations will have to support without distributing this, as was evidently intended by Sir Christopher Wren when designing the building. It is, of course, impossible in the course of such a rapid inspection to appreciate fully all the factors in a very intricate problem, but the visit was certainly of great interest to all those who attended.

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**Reinforced Concrete Staircase in a Barcelona Store Building.**

**Craftsmanship: The Work of the Smith.**

AT a recent conference convened by the Kent Community Council to discuss the position of rural blacksmiths in Kent, some pertinent remarks were made by Mr. F. R. Hiorns, representing the Royal Institute of British Architects. Many fine buildings in the country, he said, owed their beauty largely to the work of smiths—gates, railings, grilles and the like. In the later Victorian period the work of the craftsman was largely diverted to manufacturing firms. He hoped that a real effort would be made to encourage the rural craftsman to return to the earlier tradition. Possibly the Government might be persuaded to interest themselves in the formation of an association having for its object the encouragement of the use of smiths' work in local building operations in the hope that in course of time it might be possible to establish an agency to which the local authorities or other persons responsible for building might apply for such work. Another speaker, Major E. S. Granville-Streatfield, urged that a serious effort should be made to retain and encourage the artist craftsman. The work of English smiths in the past had been unrivalled; everything possible should be done to maintain the fine tradition of the wrought iron work of this country. There was still ample scope for the more artistic forms of wrought iron work, and steps should be taken to ascertain which smiths were able to do such work. He advocated a selling centre where this class of work could be exhibited, and would be seen by those who are most likely to buy.

From the Exhibition at the Mansard Gallery.

**Newel Post.**

BY MR. F. C. LIPSCOMBE.

**Art in Schools.** WE are glad to note that in his introduction to the building regulations for public elementary schools in Wales Sir Alfred T. Davies points out that there are things necessary to the making of a good school which are "too elusive for official documents." The influence of a well-designed building on the young folk who will spend some of their most impressionable years in it is a very important matter, and the full importance does not end with good planning and sound construction, but ought to include architectural values of good proportion and pleasant light and colour.

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**Advisory Art.** WE have referred to the admirable work of the Birmingham Advisory Art Committee, and its value is well emphasised in the annual report, issued about three weeks since, which deals with the year 1924. In this report is a list of fifty-two submissions, and these are from city departments as well as the Civic Society. Birmingham is fortunate in having such sympathetic consideration from the municipal authorities in the work of the Civic Society. Since the establishment of the London Society there has been greatly increased activity in the efforts to increase city and town amenities, and in Birmingham at any rate the results of such efforts seem relatively much greater than is achieved in London.

**Architecture and Painting.** THIS subject which might at first sight suggest the decoration of wall spaces and the relation of colour painting to interior surfaces was treated by Mr. Charles Marriott at the Architectural Association last week from another side. Dealing with the pictorial representation of architecture, Mr. Marriott spoke of the varying influences which have changed its character at different times, such as that which occurred about the middle of the sixteenth century with its more abstract consideration of form. There is undoubtedly a tendency towards the return in recent days to a more sober and less subjective approach, in which the realities of architectural forms are not too much metamorphosed by personal idiosyncrasy; one in which theories of treatment do not intervene to obscure adequacy of representation. We are learning once more that too much theorising about representation takes us a very little way indeed. The work of artists like Muirhead Bone F. L. Griggs and others, while full of imaginative perception, are no less free from the disorders of a too abstract approach, because they see more objectively and interpret therefore more truly, while the characteristics of treatment are no less entirely their own. A school of theorists has for some time been persuading us that art must now be self-conscious, though no one can say why, and it is noticeable that all the best work done is not so, and that personality suffers when its presence protrudes too much. It is all no doubt mostly a matter of character and attitude to life which directs us in the better case not to nurse our "ego" too anxiously, and in the worse is too much centred on it.

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**County Hall Exhibition.** WHAT should be a very interesting exhibition is being arranged by the London County Council and will be shown shortly in one of the rooms of the County Hall. This is an exhibition of prints and drawings of the City and West End, and also of the suburbs of London over a period of about two hundred years. From the time, in fact, when Hanover-square was almost on the edge of London, the site of the Mansion House a vegetable market, and Hammersmith a country village. To those who desire to be better acquainted with their London this exhibition should be a good opportunity of their becoming so. To a certain extent we have been made familiar with many of the characteristics of old London in popular volumes such as those of Charles Knight's "Old England," &c., which were issued in the sixties of last century, and other books, but there is much more than this to be learned in such an exhibition, which includes work by Hogarth and Rowlandson, as well as old prints of the bridges of London and other buildings. There are no windmills now at Millwall, nor is the Isle of Dogs a desert, but some of us will miss certain human characteristics which distinguished the older buildings of London, and which do not offer us the same sort of greeting in the new Regent-street.

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**"Architecture."** SINCE the Society of Architects agreed to amalgamate with the R.I.B.A. the Council of the Society has been considering the best arrangements to make whereby their publication *Architecture* might be carried on after the Society has ceased to exist. We are pleased to announce that the Society has disposed of its interests in the magazine to *The Builder*, Ltd., who will issue *Architecture* from May next; therefore the April issue is the last one which members will receive from the Society. The intention of the new proprietors is to carry on the tradition of *Architecture* as far as possible and at the same time to extend the scope of the publication and make it more comprehensive and representative, not only of that aspect of architecture for which it has always stood, but of the arts and crafts allied to architecture which it would have been impossible for the Society, with its more limited organisation, to achieve. While the art of architecture will be fully and sympathetically dealt with, it is felt that an opportunity has now arisen to deal more particularly with the arts and crafts accessory to architecture. As the Royal Institute of British Architects has wisely decided to give more encouragement to these arts, it will be the aim of *Architecture* to support its efforts in every way.

From the Exhibition at the Mansard Gallery.

**Newel Post.**

BY MR. F. C LIPSCOMBE.

# GENERAL NEWS

### Professional Announcements.

Messrs. Pease & Tanner, quantity surveyors, have moved from No. 46, Lincoln's Inn Fields, W.C.2, to No. 30, Bedford-square, W.C.1.

Mr. T. Cecil Howitt, A.R.I.B.A., has removed to Western Buildings, 58 and 59, Long-row, Nottingham.

Mr. S. Hurst Seager leaves for New Zealand on April 3 as representative of the Government of New Zealand at the International City and Regional Planning Conference. He will attend the Conference of the American Institute of Architects, to be held in New York. Mr. Hurst Seager's address till the end of April will be: Town-Planning Conference Bureau, Hotel Pennsylvania, New York (U.S.A.); until the end of July, P.O., San Francisco; till the end of August, P.O., Honolulu; and after that date, Christchurch, New Zealand, P.O. Box 503.

### Academic Honour.

Mr. John Bilson, F.S.A., F.R.I.B.A., of Hull, is to have the degree of D.Litt. conferred on him in June by Durham University.

### Incorporated Church Building Society.

At the monthly meeting of the Incorporated Church Building Society, grants were made towards rebuilding the church at Llandeloy, S. Teloy, Pembs., £100. Towards enlarging, reseating, or repairing the churches at Broadstairs, Holy Trinity, £150; Dittisham, S. George, £100; and Redruth, S. Andrew, £250. The following grants were also paid for works completed: at Cefn Cribbwr, S. Colman, £100; Leicester, The Holy Apostles, £300; Llay, S. Martin, £400; Ribchester, S. Wilfred, £100; S. Marylebone, All Souls, £100; and Sandiway, S. John-the-Evangelist, £100. In addition to the above, the sum of £579 was paid towards repairs to twenty-six churches from Trust Funds held by the Society.

### The National Gallery.

Three interesting additions have just been made to the collection at Trafalgar-square. Mr. F. D. Lycett-Green has presented, through the National Art-Collections Fund, a portrait in pastel of Mme. Legrue (?), by J. B. Perronneau, *c.* 1757. The portrait, which was formerly in the De Motte Collection, is placed in Room XXI as a pendant to the pastel by the same artist which was presented some years ago by Sir Joseph Duveen. The portrait of Samuel Cousins, the engraver, by Frank Hall, which attracted so much attention when recently exhibited at Burlington House, will be found in the adjoining Room, No. XXII. The Trustees have also acquired by purchase a predella panel by Lorenzo Monaco, representing scenes in the life of St. Benedict, including the rescue of St. Placidus by St. Maurus, and the episode of the miraculous storm which occurred when St. Benedict was visiting his sister St. Scholastica. The panel has been placed in Room I.

### Wembley Building Committee.

A committee to assist the Exhibition Management of Wembley in the organisation of the housing exhibit, of which Mr. Neville Chamberlain, Minister of Health, has accepted the presidency, has recently been completed, the names of the members being as follows:—Sir James Carmichael, of the Ministry of Health (chairman), Sir Edwin Airey, Mr. Harold Anderson, Major Harry Barnes, Mr. Charles Boot, Mr. D. N. Dunlop, Mr. W. H. ffiske, Mr. F. W. Goodenough, Mr. H. J. C. Johnston, Mr. H. C. Montgomery, Sir Charles Ruthen, Mr. R. H. Selbie, Mr. P. W. Stewart, Mr. J. C. Telford, Mr. Raymond Unwin, and Mr. Topham Forrest. There will also be at Wembley a display of building materials, and the Commercial Gas Association and the British Electrical and Allied Manufacturers' Association are co-operating with the Exhibition in organising the display. They have agreed to assist exhibitors who are erecting houses by giving them the names of, or putting them into touch with, gas and electric light contractors.

# ST. PAUL'S CATHEDRAL

### "The Middle Course."

Lecturing before the Bishopsgate Ward Club, at the Great Eastern Hotel, E.C., on Tuesday last week, Mr. W. A. Forsyth, F.R.I.B.A., said the trouble at St. Paul's arose from the fact that, owing to the scarcity of large stones, combined with an unwise speed of erection, the core of the large piers supporting the dome had been laid with an unequal limestone rubble or concrete thrown in lime mortar; the piers in the crypt being faced with small material, mostly from the old cathedral, and those in the nave with large Portland stones. The rubble core contracted considerably after setting, whereas the mortar in the stone facing, being close jointed, shrunk but very slightly. The contraction of the two sections of the pier was, therefore, very unequal, and caused a cleavage to take place between the core and the facing. This was what was impairing the safety of the Cathedral. While the core was taking the greater part of the load the facing was stressed beyond all reasonable safety. But the inclination of the piers from the perpendicular was another matter and was not dangerous. It was not a crushing movement due to the weight of the dome, but a natural movement that had taken place during the original building operations.

Of the use of iron in the building the lecturer said that Wren had used wrought iron bands, and those who had followed used wrought iron cramps and other stiffening. Much of this material had been cut out in recent years. As evidence of the power of rust expansion, he instanced that at the head of the drum carrying the lead dome, and under large courses of Portland cement, were two bands of flat wrought iron. Wet had penetrated and set up rust in the bands, the expansion being so great as to lift or compress the lead dome at least three-quarters of an inch. It was no uncommon thing for wrought iron bedded in limestone masonry to expand by rust to double its initial substance. The process of expansion was very powerful. Ferro-concrete having mild steel reinforcement should be kept out of St. Paul's.

Speaking of remedies, the lecturer said that the providing of these was a matter for architects rather than engineers. The chief operation at present appeared to be the grouting in cement of the eight piers which supported the dome. The grouting of a lime-built stone rubble core under great pneumatic pressure could not, under any circumstances, be effectual or reliable, and the grout was in this case being applied in a heavy-handed manner by being forced through long borings in the pier. The fact that grout was doubtful in its penetration was sufficient reason for the discontinuance of the method. But cement grouting without sand of any kind was also faulty in the respect that it set too quickly and shrank a good deal as the result of evaporation. A weaker sandy mixture would give greater adhesion, be sufficiently strong for its purpose, and shrink less. In the final report they were told that metal rods were being inserted in the holes bored for grouting. This was in no sense reinforcement: it did not strengthen the core nor aid the grout. If the bars were of mild steel, the most rustable of ferrous metals now in general use, in the course of time they would work irrevocable havoc in the piers. Many extravagant proposals for dealing with the Cathedral had appeared in the press; they were based upon an assumption that the building was in a much more dangerous condition than the evidence suggested. On the other hand the repairs now in process would not restore the essential parts of the building to a known state of security. What should be done was to rebuild with brickwork the core of the masonry in the piers. This could be done with safety in a piecemeal manner very much as a city warehouse wall was underpinned. It would not be necessary to shore up the superstructure. It would be necessary, however, to support the piers and so retain the ashlar facing and other superficial parts. It was fundamental that the piers and arches should be left standing during any repairs. If the rebuilding of the core that he proposed was adopted, the grouting which had been done would be of great assistance in enabling the work to proceed fairly quickly and with less risk. The new brick core would proceed slowly and be pinned up to the facing. If found necessary copper or other non-ferrous metal cramps could be inserted to hold such stones to the new core as were of value as bonding agents. Hand-made tiles could also be used for wedging up and for filling up between the new brick core and the inequalities of the backs of the facing stones. He did not make these proposals for the piers alone. The arches, especially the springing, should be carefully examined and dealt with upon the same lines. The bastion supports should also receive attention.

Among various suggestions made during the discussion that followed Mr. A. E. Frampton said that the piers must be made homogeneous.

Mr. Langton Cole said that the dome of St. Peter's stood upon four piers, whereas that of St. Paul's stood upon eight. His remedy would be to build up the alternating arches. The new piers should be of solid brick encased in stone, and the dome should rest upon them.

Mr. John Todd (late Dangerous Structure Surveyor to the City Corporation), being asked for his views, said they were well known. He had never seen reason to change them, and he believed the Corporation of London would last long enough to come to the conclusion that his views were sound views.

The lecturer, replying, said, among other things, that he agreed with Mr. Frampton that the piers must be made homogeneous.

# COMPETITION NEWS

### Ramsgate Lay-out.

Designs are invited for the lay-out of land as a recreation ground, allotments, and an elementary school. A prize of £100 is offered. Sending-in day, April 27. (See advertisement this week.)

### Argentina.

The Argentine Government offers prizes of 10,000, 6,000, 4,000, 3,000 and 2,000 Argentine gold pesos for the best architectural designs for a National Institute for the Blind. Further particulars are available in the Enquiry Room at the Department of Overseas Trade, 35, Old Queen-street, S.W.1. The principal points of this competition, translated into English, may be seen at the Office of *The Builder*. (Sending-in day, December 31, 1925.)

A booklet containing the full text of the conditions with other information (translated from the Spanish), and a plan of the ground on which the Institution is to be erected has now been received and is available for inspection at the Department of Overseas Trade (Room 42), 35, Old Queen-street, London, S.W.1.

### Art and Commerce.

*The Studio* has inaugurated a competition for suggestions on "The Means of Strengthening the Relationship between Art and Commerce." Prizes: £25, £10, and £5. Sending-in day, August 31. Further particulars from the Editor of *The Studio*.

### Other Competitions.

Other competitions still open include the following (the dates given are, first the sending-in date, and second the issue of *The Builder* in which full particulars were given):—Industrial Designs (June 25; Dec. 26). Valetta Lay-out (June 30; Jan. 2). Constantine College (May 15; Jan. 23). Stockbridge Baths (banned by the R.I.B.A., April 7; Feb. 6). Shuttering (May 31; Feb. 13). Geneva Conference Hall (no sending-in date). Copenhagen Bridge (Sept. 1; Feb. 20). Canadian War Memorial (June 11; March 13). Norwich Extension (July 1; March 20). Dundee Secondary School (April 18; March 13). Belfast Library (June 4; March 27).

**New Premises of the Auctioneers' and Estate Agents' Institute, Lincoln's Inn, W.C.**

Messrs. Greenaway & Newberry, FF.R.I.B.A., Architects.

[For this building, which was fully illustrated in our issue for January 9, Messrs. Greenaway & Newberry have been awarded the R.I.B.A. Street Architecture Medal for the best street frontage erected in London in 1924.]

# CORRESPONDENCE

*[While we are glad to publish letters on professional and other matters of interest to our readers, it must be understood that we do not necessarily endorse the remarks of correspondents, who will oblige us if they will express their views as briefly as possible.]*

### Waterloo Bridge.

SIR,—I have been much interested in reading the correspondence concerning the above and in noting the very general interest which the subject has aroused. So many of these matters in the past, having been considered as purely technical, have been treated of *in camera* and almost as if a certain secrecy were essential. In the present matter, however, a healthy publicity has been indulged in by a large and varied section of the community. It would be very wrong to suggest that a small technical beaurocracy should be allowed to deal arbitrarily with a public monument of any kind; for the essence or soul of a monument does not lie in the monument itself, but rather in some atmosphere which depends for its existence on the recognition of it by the public mind.

Amongst the people aroused by the suggested demolition those who may be termed the academicians are by no means the least so, and probably also with much justice. For when it is a matter in which learning is concerned who could be better able to judge than the scholar? Consequently it is with no surprise that we meet with scathing comment from all leaders in architectural thought; and in particular from the instructors at the architectural schools and universities. At the same time the thought cannot be considered apart from the effect which their life-long endeavours at teaching should have had upon their students. It should not be an excessive view to hold that after many years of such instruction there should result a large body of disciples well grounded in the way things architectural should really be, so that it is quite conceivable that there are to-day many fitted to the entire satisfaction of the schools and universities to design, amongst other things, architecturally good bridges; and it may be assumed that they, when students, passed some test in a manner which was conceived to be satisfactory to their instructors.

Consequently one may perhaps be forgiven for experiencing a certain complexity in the situation created by those instructors decrying an opportunity, and such opportunities are scarce, when their life's work in instructing may be crowned by the achievement of an imperishable monument on the part of one of the scholars whom they have trained. Sites where bridges are possible are scarce. It is not as if bridges were erected with any frequency. There are many bridges in the world, but few in England, and almost none in London, of which it may be said that it represents the highest attainment of the architectural conception of our age; that it will mark our age throughout futurity. Therefore, the question is asked, Does not this seem to be the opportunity of the instructors in matters architectural to set their mark upon an age by no means prolific in architectural masterpieces? No one disputes that Rennie's bridge is a masterpiece, but then neither should anyone claim that the age of masterpieces is past, and certain it is that the claim should be made least of all by the professors.

H. BRYANT NEWBOLD.

London.

### An Architects' and Builders' Joint Board.

SIR,—All those who wish for better conditions in the building industry will share the satisfaction expressed in your recent "leader" at the establishment of this Board, if it develops into a real live board by the inclusion of the "other party to be reckoned with"—the operatives—without whom it will be not only useless, but harmful.

It is true there are some things which concern the architect and builder which do not directly interest the operative, but the Council of the R.I.B.A., and the Councils of the I. of B. and L.M.B.A., can deal with these things quite well without a special board; and it would be a setback rather than an advance to establish a Joint Board of architects and builders which excluded operatives, because it would certainly give the impression that the profession had thrown its influence into the scale against the worker, which would not be true. In such circumstance it would not be any use stating that such an impression is unfounded in fact, because once more good intention would be honestly thought ill-will. In other connections I have stated, what is a recognised fact by thoughtful people, that a wrong impression honestly held is as harmful, in effect, as an evil in existence. A Joint Board of architects and builders only would, in the case of trade disputes, create difficulties and necessitate explanations of the architects' attitude to the particular dispute; an impossible position for the R.I.B.A. Either the architect members of the joint board would support the employer and so add to the class feeling which is spoiling all our industries; or they would not support and create in the minds of the employers a sense of desertion at the testing time; but neither attitude could represent the profession, which will always be divided as to the merits of any trade dispute. Unless the third party can be brought in as you suggest a joint board will be futile if not worse, *i.e.*, harmful. The one thing the R.I.B.A. might do to help the building trade is to get rid of the misunderstanding which undoubtedly exists in the minds of many employers and operatives. I sincerely hope that the *Westminster Gazette* is right and that we are in sight of an agreement on the question of "wet pay"; and I am quite convinced that the more generous the concession the greater will be the gain; and that all question of loss, or of gift ,may be set on one side. There will be no loss and no gift of £500,000, or any other sum, but an increase in output which will lead to cheaper building, more work, and larger profits; if the employers do not make the mistake of keeping up prices instead of reducing them with increased output. Lower prices, more work, quicker turnover, less profit on each job, but very many more jobs should be the policy of the builder, as of every other business man. This policy can be carried out only by the creation of contented workers, who know that their best efforts will be rewarded by increased security and comfort.

What is needed is imagination, and the "test of imagination is the power to put yourself fully in the place of another."

You, Sir, are timid and fear to make the plunge, but I am sure that when employers generally find courage enough to take the risk of reversing the old industrial methods of cutting wages as the only way out of all difficulties, and use every endeavour to create high wages, and contented workers, then output will justify the experiment and the world will be the better for the effort. Mr. Maurice Webb at Liverpool pointed out that architects had done something to help to cure the disease of overcrowding, and asked the question why we had no place in the triangular duel between the people, the manufacturer, and the unions? The answer is because as a profession we have been disunited and consequently without a voice which could speak with authority; and because the R.I.B.A., in the past, has been too thoughtful of its dignity as a professional—or learned—Society to take a proper and active interest in the building trade.

JOHN E. YERBURY.

### Settlements.

SIR,—The recent report of the experts on the condition of St. Paul's Cathedral, and the disagreement of other experts with their verdict, have brought the matter of "settlements" to the front. In all cases it is difficult for a surveyor to define the eventualities of a settlement. It may arise from many causes. New buildings often have their settlements which, in course of time, find their level, and no further notice is taken of them; but if the settlement increases, of course, something is wrong and calls for attention. Who has not seen, on making a survey, settlements in old buildings that had taken place years previously and have not extended; a remark, however, has been recorded in the Report—"old settlement." What a number of old buildings there must be that have settlements and nothing is done to them; still they stand. There does not appear to be any data to guide one, but common sense, if there is no perceptible movement of the parts of the building that is affected. If instruments record a disturbance going on, this is valuable information, and should be acted upon.

ANDREW SOUTH.

# ST. PAUL'S CATHEDRAL

THE dome of St. Paul's Cathedral has been much before the public of late, and we have therefore much pleasure in publishing plans and section of the dome which have been prepared by Sir Banister Fletcher, F.R.I.B.A., from plans and measurements made by A. Pugin and published in 1838 (see p. 521).

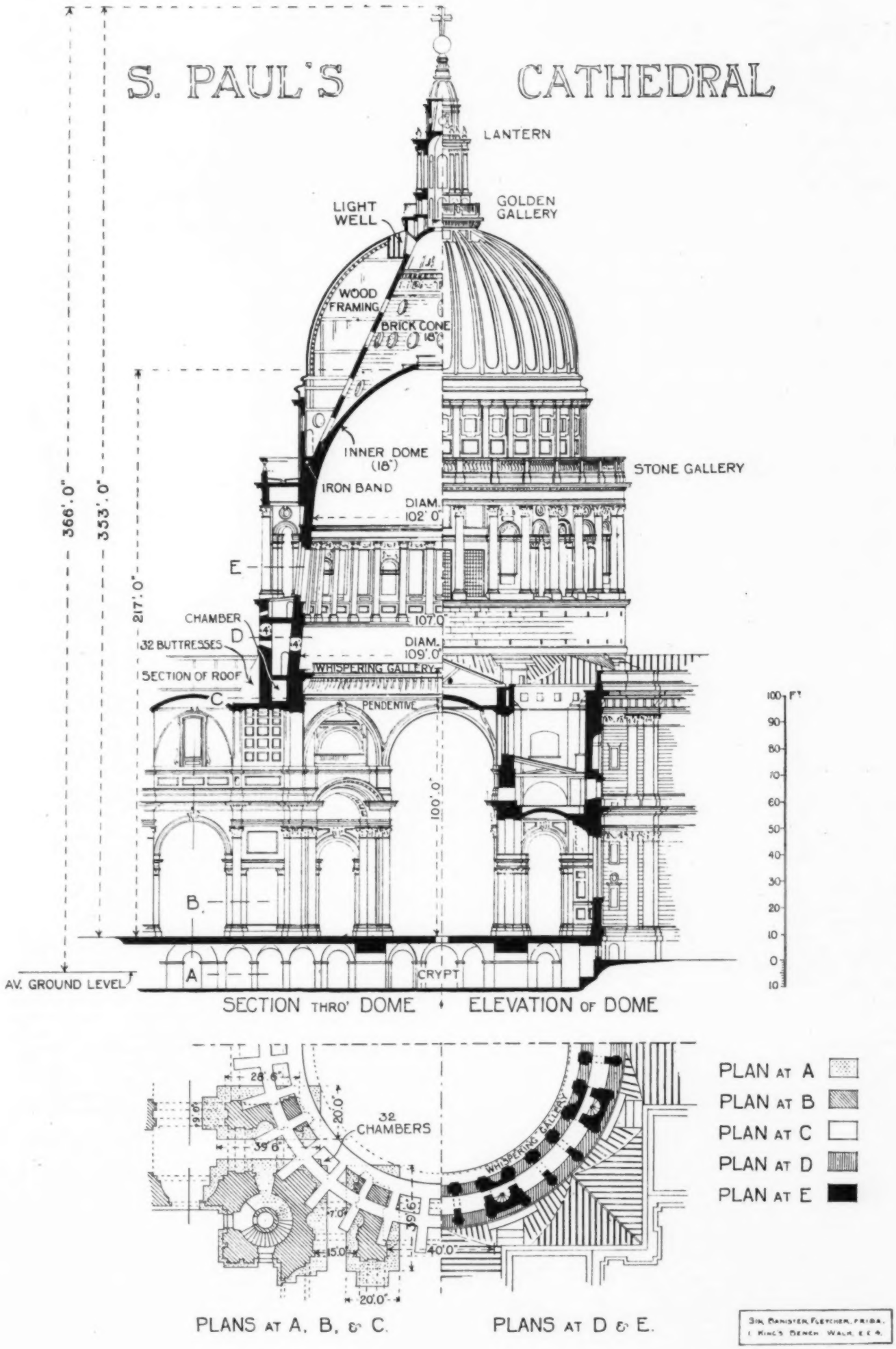
The position of the drums supporting the triple dome in relation to the piers which support them is very interesting and shows the complicated nature of the planning brought about by the peculiar placing of the nave piers because of the desire of Sir Christopher Wren that vistas should be obtained from end to end of his Cathedral. It will be seen that the inner and outer drum of the dome appear to rest upon the inner half of the piers, but that the weight is intended to be extended over the whole area of the piers by means of the 32 angle buttresses. It is said that many of these buttresses, namely, 23 out of the 32, have broken away from the outer drum, and that work in connection with these may have to be undertaken. A study of the crypt indicates the great care that Wren took to spread the weight of the foundations over a large area, and it will be found that the area of the solids to voids in the cathedral is approximately equal over the whole of the building, and in the position immediately under the dome the solids are even in a higher ratio.

In addition to the eight piers which each measure 28 ft. 6 in. by 9 ft. on the ground floor and 39 ft. 6 in. by 20 ft. in the crypt, there are, of course, the four great bastions which help to take the spreading weight of the dome, although the expert advisers to the Cathedral authorities say that it is difficult to state the exact weight resting upon them.

During the whole of the controversy upon this matter we have not seen a diagram showing the interesting facts set forth on the plan and section that we publish to-day, which, if studied in conjunction with the weights of the various parts of the dome as given in the Report of the architects and engineers advising the Cathedral authorities, is of the greatest interest to architects. This diagram is of additional interest as we understand it was one of the diagrams prepared for the Special Committee on St. Paul's Cathedral appointed by the City Corporation of which Sir Banister Fletcher is a member.

### Exhibition of Turnery.

An exhibition of turnery will be held at the Mansion House during the course of this month. This will be open to the public (by ticket), on April 22 and 23, from 11 a.m. to 4 p.m., and Friday, April 24, from 11 a.m. to 2 p.m. The Worshipful Company of Turners, one of the oldest of the celebrated City Guilds, was incorporated by Charter of James II, as their title implies, to "encourage the Art and Misterie of Turning," and this charge it has and is fulfilling to the best of its ability by holding year by year open competitions in turned work, as well as in other ways. Full particulars can be obtained from Major J. G. H. Budd, 53, Haymarket, London, S.W. 1.




[These plans and section of the Dome of St. Paul's have been prepared by SIR BANISTER FLETCHER, F.R.I.B.A., from plans and measurements made by Pugin in 1838. (*See p.* 520.)]

# THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

A meeting of the Royal Institute of British Architects was held at 9, Conduit-street on Monday last. The Hon. Sec. (Mr. Arthur Keen) announced the death of the Most Hon. the Marquess of Curzon, K.G., elected Hon. Fellow 1904; Lord Sheffield, elected Hon. Associate 1904; William Ashford Hodges, elected Associate 1907; Hubert Stanley Saunders, elected Associate 1881, and moved that a message of sympathy be conveyed to their relatives.

### The Architecture of Concrete.

Professor A. Beresford Pite then read a paper entitled "The Architecture of Concrete," in the course of which he said ferro-concrete was claiming an increased share in the production of buildings; of this they were duly informed by the regular and plentiful supply of illustrations by the promoters of various systems of construction. They would acknowledge the interest and usefulness of this propaganda, but ventured to doubt if their publishers were aware of the mixed emotions that the architecture illustrated evoked. The factories, public buildings and bridges which at present formed the bulk of the work executed in ferro-concrete could scarcely provide sufficient justification for a general discussion of the architecture of concrete, but they illustrated at least some of its practical applications at home. On the Continent, however, it was evident that a courageous architectural spirit had seized upon the possibilities, artistic as well as practical, of this novel substance of construction, and that results which could only be described as revolutionary had already appeared. Further, the formation of classes for the study of ferro-concrete had sprung up in their technical institutes to meet the constant demand for expert knowledge, and the feeling was general in the structural engineering world that a cement age had dawned upon the civilised world. The lecturer then dealt with the subject under the following headings:—

### Differences in Constructional Method and Expression.

He did not, he said, propose to deal with the use of concrete as an imitation of stone in blocks, slabs or cast columns or arches. Apart from the speculation whether such a use was justifiable, its results architecturally would be merely those hitherto common to all buildings; in such the multitude of stones or bricks, piled up course by course, had each a relation to its neighbours that became the constant care of the designer. This subject of concrete substitutes had no urgency to-day, and might be left to the tender care for economics that distinguished the housing problem. The architecture of concrete was that of a material dealt with in a fluid state, poured into and allowed to harden in moulds, which in the process were a temporary part of the fabric. The forms into which it ultimately hardens were created when it was plastic and possessing a freedom new to building processes, unknown to stonework and beyond the scale and scope of any moulded brick or terra-cotta. Its possibilities of entirely novel form were therefore new, and really terrified the tradition-loving imagination of the architect. Combined with this initial plasticity and consistently secreted within, lie the reinforcements of steel rods, gathering up the tensile and shearing strains that rend the built-up wall of masonry or brickwork, and thus dispense with the thickening piers and buttresses. Walls, even when not mere panels between piers, had a thinness that was unusual and which baffled the ordinary architectural conception of a wall like boiler plate building. The reinforcement did not dispense with articulation. Though it was not bare, as it might be in steel framework, it existed clothed with the concrete of the composite material. It was not the least useful of the qualities of the combination of steel and concrete that an essential unity of structure resulted from the mixture of minerals and metal. The advent of concealed steel framing into walls used to be justified by the analogy of the human skeleton, and answered by the purists with the retort that the flesh had no structural relation to its bones. But the simile would now hold good and perhaps carried further into the analogy of muscle and tendon which yielded the beauty of form to the animal figure.

### Architectural Forms and Ornament.

The question would be asked were the new and special qualities of ferro-concrete building sufficient to provide a satisfying architecture, and if not, for they would not supply the modern designer with either decorative ideas or forms, from whence could he bring material if not from the architectures of masonry or brickwork? Was it to be expected that this new plastic wall substance would forthwith put forth its own characteristic flowering and in a generation accomplish that for which centuries were requisite in all other historic architectures? The answer was not as obvious as it might appear to be. "The heir of all the ages" had but recently believed himself qualified to design with Greek, Roman, Gothic and Renaissance spirit, and, in fact, the classrooms and studios of the educational hothouse had cultivated this conceit with some effect. But they must, for the present, leave on one side the provocative subject of historic style, and insist upon the cleanness of the state whereon the fresh concrete style was to be planted. Could architecture spring out of mere novelty of construction? Would the elemental qualities suffice to give interest and avoid the importation of extraneous and affected ornamentation? The qualities that they had already observed to characterise ferro-concrete building comprised a new largeness or freedom of scale, simplicity in directly expressing purpose, originality of treatment, a novel standard and sense of proportion, and the but partially explored possibilities of constructional adventure in design which were not attainable in materials that were wrought when solid. With such elements and potentialities the architect might begin his consideration of the problems of improvement to which his office appertained. He should primarily recognise and perhaps emphasise the special qualities and purposes of the building and its construction, at all events not dissemble with them as if they were antagonistic to his ideals. He could bring organisation to bear upon the masses of the building by simple symmetrical arrangement, itself the first evidence of civilisation in evolution, balancing and gradating projections both on plan and elevation, in due regard to the premise of utility. Or by the emphasis of parts mould irregular masses into picturesque groups of contrasting forms, for by taking thought, intelligence or idea, might be imparted to a chaos. Contrast between the horizontal and vertical direction of stories might be secured and marked by the arrangement and division of openings in the wall. Piers and beams might be expressed as they were necessitated by the construction without other artistic interference, the problems of proportion being left, as already indicated, to the structural engineer, and finally the peculiar outrages upon the ideals of an architecture that knew only stone or brick should be emphasised without modification for the instruction of the ignorant and the furtherance of a standard relative to the peculiar genius of the system of structure. Such suggestions might be multiplied; they were but general; each building would furnish its own opportunity for design, but provided that intellectual interest was manifested it might be confidently asserted that artistic result was assured and the path leading to architectural success entered upon, though in a hitherto unexplored territory.

It would doubtless be felt, continued the lecturer, that these proposals, by dealing only with the abstract elements of architecture, still left the designer without material; the laws of grammar, the arrangement of parts of speech were of little practical use without a vocabulary, and unless the architectural orator was permitted to employ a language, whether Egyptian, Greek, Italian, French, or English, understood by the eye, he was invalid and helpless to express himself. This would be readily admitted for the purposes of argument, but with the reminder that other constructive arts, such as shipbuilding, had evolved beauty without any presumed reference to antique models. It might even be suggested that the initiation of many great architectural developments had taken place without reliance on artistic precedent. From whence came the Pantheon Dome or the Gothic Minster? The initial debt in each to architectural parentage was indeed small in comparison with their development.

### Architectural Education in Relation to the Design of Ferro-Concrete.

The scientific or constructional aspects of ferro-concrete building were, on all hands, dealt with; the subject was interesting and lent itself to text-book and class instruction, and as the demand for trained specialists for engineers' and architects' assistants increased, the constitutency of students grew. The schools of architecture either directly or indirectly through association with schools of engineering provided courses for architects in this single aspect of the great subject. But it had not yet been realised by the Board of Architectural Education of the Institute that its examinations which provided the syllabus of study in all the schools that it recognised had no knowledge of the essential truth that training and exercise in the art of building in stone or solid materials

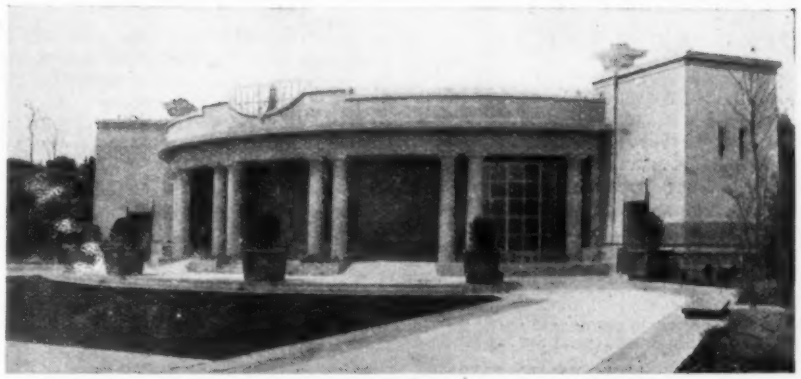
**Reinforced Concrete Radio Station at Kootwijk.**
Mr. J. M. Luthman, Architect.

was of little or no artistic service to the architect in ferro-concrete. It must be emphasised that the responsibility of the Institute in this matter was the more considerable as in practice the professional teachers of architecture throughout the sphere of the Institute's examinations, which covered the British Empire, did not extend their outlook much beyond its syllabus. To put the problem bluntly, what good would the laborious study of the orders of stonework architecture be to the practitioner in ferro-concrete? The effect of such wasted study was misleading both to the student and to the public, and ultimately was inimical to architectural progress. The case might well be supposed, in fact it existed, that engineering students of ferro-concrete construction desirous of some acquaintance with the principles of architectural design sought the assistance of a school organised on the basis of the Institute examinations. The discovery must then be made that the educational system had become so detached from practical work and reality that its provision for students of the art of concrete architecture was naught but the basis of Vitruvius with an appendix on the Gothic Revival. That this was no caricature the intermediate examination papers of the Board would make clear.

It was necessary as pertaining to the subject of the architecture of concrete to consider the greatness of the opportunity which was now opening before them for an advance that should be general in the study of the essentials of architecture, of its relation to constructional progress and to artistic criticism and analysis. It would be lamentable if the lamp of progress passed entirely in building from the hands of architects to energetic constructional firms and their engineers. Architecture long ago, say, about the time of the erection of the 1851 Exhibition, lost the opportunity of including iron structures within the art—the prejudices of Pugin and Ruskin had not a little to do with that—and the British engineers since then had carried the standard of progressive construction. In the advent of ferro-concrete a new opportunity might be hailed for architecture if the leaders of the profession were at all conscious of the universality of their art. The opportunity was not merely that of becoming constructors, but of leading an authentic development of building practice along the paths of organised study and artistic discrimination and enthusiasm as it rapidly grew in usefulness to the world. This awakening of the profession of architecture from the curious dreams of the Renaissance and revivals to a new view of that ever-living present, which, in spite of all traditions, insisted upon its urgency and in which their responsibilities could not be evaded, might come from the necessity of preparation by education and practice for that architecture of concrete which had come upon them to search and reorganise their ideals.

### Discussion.

Sir E. Owen Williams, in moving the vote of thanks, said if he might be permitted to summarise the paper its desire was not to dogmatise but simply to ventilate, through discussion, the architecture of a new material. He had seen the paper described elsewhere as "The Architectural Treatment of Reinforced Concrete," but preferred the author's own title, "The Architecture of Concrete." The introduction of the word "treatment" seemed to him to indicate that concrete itself could not be architectural, and required some sort of treatment in the hands of a doctor. He was quite prepared to admit that reinforced concrete, as it was commonly known, justly deserved the stigma, but it was interesting to follow the path by which the material had, to a large extent, fallen into disrepute architecturally. Reinforced concrete, being a new material, had had to find its way in the world, and its only weapon so far had been cheapness. Competitive designs, called for, he was afraid, principally by architects, had resulted in skinny, spindley designs based on only one consideration, *i.e.*, first cost to get the job, and if the structures that resulted from this procedure were the ones to be treated



**Concrete Pavilion at Ramsgate.** Sir John Burnet & Partners, Architects.

architecturally, whilst he admitted they needed some treatment, yet he was afraid that the result, because it was a sham, would only be a waste of money. To take an analogy—supposing brick buildings were subjected to the same procedure in design, *i.e.*, designs and prices invited for the cheapest brick building, he assured them that brick columns would take on very different proportions from what they were accustomed. The engineer would very soon reduce brick columns to something of the proportions of concrete columns, if first cost were the only consideration. The foundation of the technique of the architecture of concrete must be in practical observation of the process of concreting and peculiarities of concrete.

Concrete, again, was subject to expansion and contraction, because it was a material which had tensile strength. Indeed, in this respect it was not different from stonework built in cement. The change from lime to cement in brickwork was not merely an alteration in the specification which changed bricks from being single units detached from each other into a cohesive mass, indeed into concrete, of which bricks were the aggregate. Expansion joints were, therefore, as important in cement brickwork as in concrete, and should be situated not more than 40 ft. apart. This surely must give some definite treatment to elevations. The lecturer had, he thought, in his paper become so enthusiastic about reinforced concrete that he pictured it as the materials the ancients would have used for their monumental buildings, and he ruled out the arch as a structural idea no longer of any value. He was afraid he must depart from him in this respect, as he held a definite opinion that the arch was the only structure that could be permanent in any sense of permanency, and that any design allowing tensile stresses calling for steel reinforcement had necessarily within them the elements of destruction and ultimate failure. Reinforced concrete was a modern commercial expedient for the production of cheap buildings. The introduction of steel, a corrosive material, into the structure, definitely limited its period of usefulness.

He considered that had the ancients been in possession of concrete they would have constructed their buildings of concrete without reinforcement, relying solely upon weight for stability in the one structural element that permitted of this, namely, the arch. He was referring, of course, to monumental structures, *i.e.*, buildings requiring to last more than 100 years. The lecturer drew no distinction between buildings of the monumental category and buildings of the lesser permanent character, although the distinction was one of the utmost importance.

Professor William Rothenstein seconded the vote of thanks.

Professor Lionel Budden stated that the lecturer had mentioned that the function of constructional teachers was limited by the examination of the Royal Institute; he submitted, however, it was not the case. He rather thought that the lecturer had caricatured the teaching of construction as given in the schools. There must, however, be a great deal in the old methods.

Sir Richard Paget, Dr. J. W. Mackail, Mr. A. R. Sage, and Mr. Leverton also took part in the discussion.

At the conclusion of the proceedings Professor Pite briefly responded.

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We take the following notes from the minutes of the Council Meeting, held on March 16:—

*The City Churches.*—On the recommendation of the Art Standing Committee, it was decided to take special steps to direct public attention to the threat to the City churches.

*The Bombay Architectural Association.*—The Bombay Architectural Association was admitted as an Allied Society of the R.I.B.A. under the provisions of By-laws 81 to 85.

*The Registration Committee.*—Mr. C. McArthur Butler was appointed Secretary of the Registration Committee.

*Reinstatement.*—Mr. Dodgshun was reinstated as a Licentiate.

## EXHIBITION NOTES

The galleries of the Royal Institute in Piccadilly have an attractive appearance for the setting and hanging of the pictures for the 116th Exhibition of Water Colours. Architectural subjects are well in evidence. A happy note as to tone and colour is seen in the interior of the church of the Certora Capri (409), by W. B. E. Ranken. It is a telling example of interior decoration, curiously halting in the simple domestic window over the altar. Mr. Ranken has another view of the same church looking west which is lacking the general quality of effect in the other. A fine architectural drawing is Malines (440), by Fred Taylor, in which the big grey church is put in with admirable force and precision above the picturesque old houses below. O. Van Anrooy is not quite at his best in his Oxford-street (447). It is a telling effect of light, but even in Oxford-street there are more attractive subjects than this. Possibly the artist wished to show that even when overloaded with advertisements a building cannot quite disguise the beauties of sky and atmosphere. An exceptionally good drawing is H. Davis Richter's "Santa Maria della Salute" (396); the grey and purple tone is just right. A wonderful force of effect is got in the South Devon Cottage, by W. Egginton (367); it is perhaps just a little too forcible. An architectural subject, "In Holland" (360), by Fred Taylor, would make a fine poster—one wonders whether, or how far, this is idealised; is it too good to be true? Disappointment must be felt in the Doge's Palace (317), by Terrick Williams, for the true effect of the building seems lost; this clever artist has won our admiration for much better things than this. We have to welcome another able drawing by Davis Richter (305) of a Dutch Watergate. A very nice drawing is of a fountain (286) by Oswald Garside. We do not remember one of these exhibitions with so much good interest in architectural subjects, and they have absorbed most of our space. There are numerous other excellent works this year to which we hope to return.

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## ILLUSTRATIONS

### Waterloo Bridge.

We give this week the drawings submitted to the Society for the Protection of Ancient Buildings by Mr. Dalrymple Hay, M.Inst.C.E., in his report on Waterloo Bridge. The text of the report is given on p. 533-4.

### Gleneagles Hotel.

This hotel, which belongs to and is managed by the London Midland and Scottish Railway Company, is Georgian in style, and the decoration, finishing and furnishing is of the later period of the eighteenth century. The ground floor of the building contains all the public rooms, as well as the kitchen offices, service, stores, laundry, boiler house, workshops, etc., special features being the sun lounge, and the ballroom, 70 ft. by 40 ft., the floor of which is fitted with Morton's Patent "Valtor" spring dancing floor.

The first, second and third floors contain 18 private sitting rooms, 216 bedrooms, 100 bathrooms, service rooms, etc., and provide accommodation for 300 guests, the plan being so arranged that private suites of rooms are provided. A swimming pool, with dressing rooms and spray and shower baths adjoining, is an interesting innovation; and behind the main building there is a garage, having accommodation for about 100 cars, including 30 lock-up compartments, and a repair shop. The materials used for the exterior of the building were, for the main entrance doorway, semi-circular sun lounge, oriel windows and other architectural features, blaxter stone; while the walls generally are of brick rough-casted, and the floors throughout are of reinforced concrete. The interior of the entrance hall and reception offices are finished in oak panelling, 12 ft. high with a richly decorated ceiling in plaster, and the cloak-room corridor has an oak-panelled dado, with plaster-panelled walls above. The public rooms, corridors, private sitting rooms and bedrooms are warmed by central heating on the low-pressure steam-heating sytem, while all the bedrooms have lavatory basins with hot and cold water supply. The building throughout is lit by electricity.

The contractors were as follows: Mason, brickwork and steelwork, Messrs. P. & W. Anderson, Ltd., Glasgow and London; joiner work, Mr. John Cochrane, Glasgow; plaster work, Messrs. Geo. Rome & Son, Ltd., Glasgow; plumber work, Messrs. William Anderson, Ltd., Glasgow, Messrs. Moses Speirs & Sons, Glasgow, and Messrs. Hugh Twaddle & Son, Glasgow; slater work, Messrs. W. & D. Mailer, Glasgow; rough-casting work, Messrs. P. White & Co., Glasgow; painter work, for the main south block, Messrs. Guthrie & Wells, Ltd., Glasgow; for the east wing, Messrs. Bowie, Fisher & Co., Glasgow; for the west wing, Messrs. George Sellars & Sons, Glasgow; marble and tile work, Messrs. Robert Brown & Son, Paisley, and Messrs. Allen & Son, Edinburgh; heating installation, Messrs. Ashwell & Nesbit, Ltd., Glasgow; hot water supply, Messrs. James Combe & Son, Ltd., Glasgow; kitchen equipment, Carron Company, Falkirk; grates, etc., Carron Company Falkirk; decoration of several of the public rooms and private sitting rooms, Mr. Charles W. Swanson, Edinburgh. Mr. Matthew Adam, Lic.R.I.B.A., Glasgow, was the architect.

### "Inversneyde," Upton.

This house, at Upton, Cheshire, was erected in 1922, and is built with a cavity wall up to the plinth level, and 9 in. walls of local brick, finished in rough-cast. The plinth was finished in "Ravenhead" rustic brick; the roof in "Rosemary" tiles; and the windows, wood casements, filled in with leaded lights. The work of general construction was carried out by Messrs. Jackson & Holt, of Moreton, Cheshire, to the design of Mr. J. E. Rowlands, M.S.A., architect, of 3, Lord-street, Liverpool. The total cost, including main drive and entrance gates, but excluding garden work, amounted to £2,581.

## BOOK REVIEWS

*The Theory and Design of Structures.* By Ewart S. Andrews, B.Sc. (London: Chapman & Hall.) Fourth edition. Price 13s. 6d.

A book that has reached its fourth edition has proved that it has a wide sphere of usefulness. And the author's work has unquestionably a peculiar value, in that it makes full use of graphical solutions, whenever possible, of the usual structural problems dealt with. In preparing a new edition, an author has the difficult task of bringing his subject matter up-to-date, so that it fills the needs of to-day. The "practical man" (what does that phrase connote?) is usually supposed to be one whose knowledge of mathematics is limited in range, and so one finds frequent attempts to simplify the mathematical arguments by avoiding the calculus methods. The result is all too frequent a very long and tedious series of equations between the statement of the problem and laws eventually deduced. In chasing out the intervening steps a student fresh to the subject loses grip upon the problem, in the desire to appreciate each step in the manipulation of the equations. In short, it is usually a case of failing "to see the forest, because of the trees." The author could, we think, have shortened some of the analytical work here and there, by taking advantage of the better knowledge of the higher mathematics of to-day, as compared with that which obtained when this work was originally written.

A feature of this work is the number of examples worked out numerically, and instead of confining one's time to reading these through, the student should very carefully work these through and compare his effort with that given in the text. It is easy to criticise, yet we venture to point out that in the example on page 167, it would have been more useful to have calculated the minimum and maximum values of the radii of gyration, and the angle between the principal axis and the long edge of the angle, instead of taking these direct from the tables of standard sections. This is a point of much trouble with many students.

A welcome addition is in appendix I, where the author gives his formula for struts, and includes in the discussion eccentric loading. The formula of Moncrieff is quoted, and some tabular results are given for mild steel. Some notes are added relating to the use of bracing to increase the flexural rigidity of columns and stanchions, and since these notes are based upon experimental work, they are valuable as an indication of the value of bracing.

Altogether the book is a valuable addition to the structural engineer's library, as well as to the student reading for his degree.

*London Town.* (The Homeland Association, Ltd.)

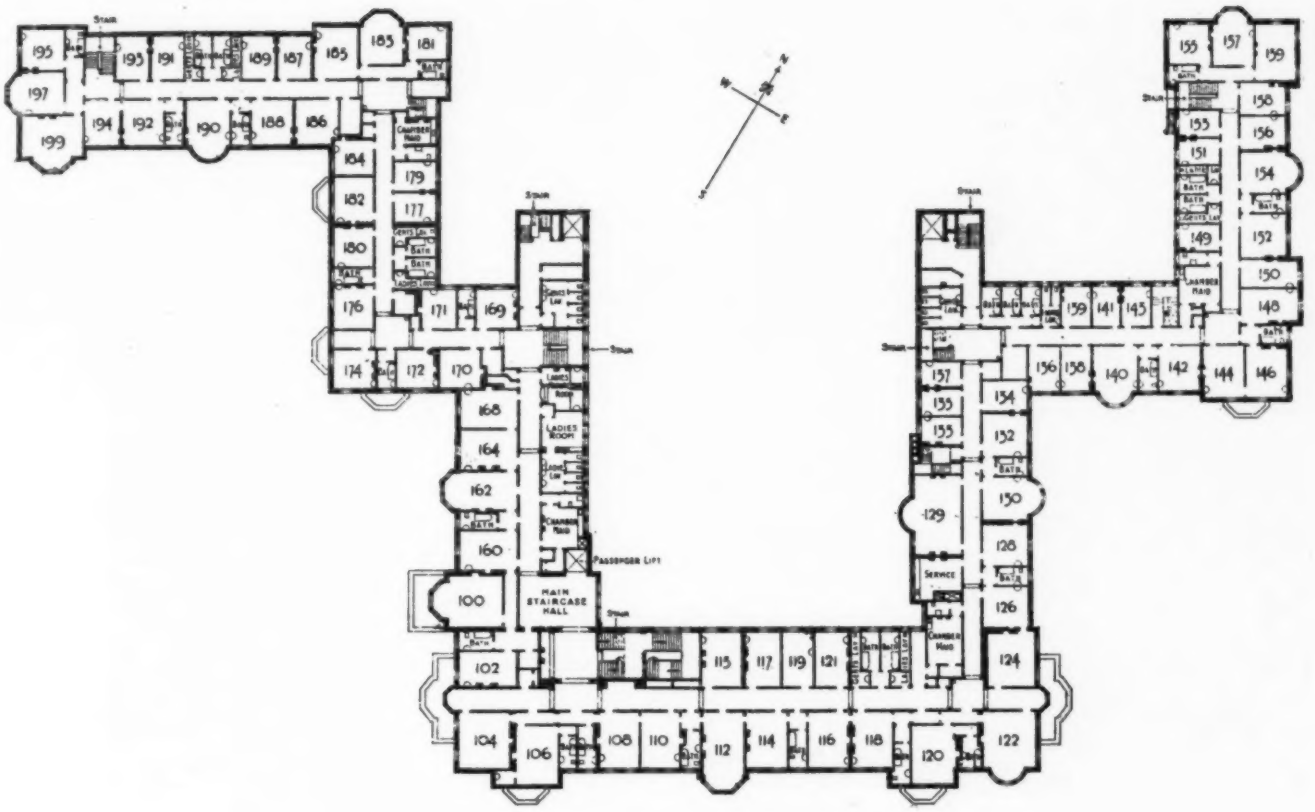
This little work contains over 100 new photographs of the principal buildings and streets in and around London. Opposite each view there is a brief historical note, which adds materially to its value as a handbook and for reference. The most well-informed cannot always say who was the architect of a well-known building and when it was erected. There are some noticeable omissions such as the Bank of England, and an index would make the book more valuable.

### BOOKS RECEIVED.

Scumbling and Colour Glazing. By Andrew Millar. (London: The Trade Papers Publishing Co., Ltd.) Price 6s.

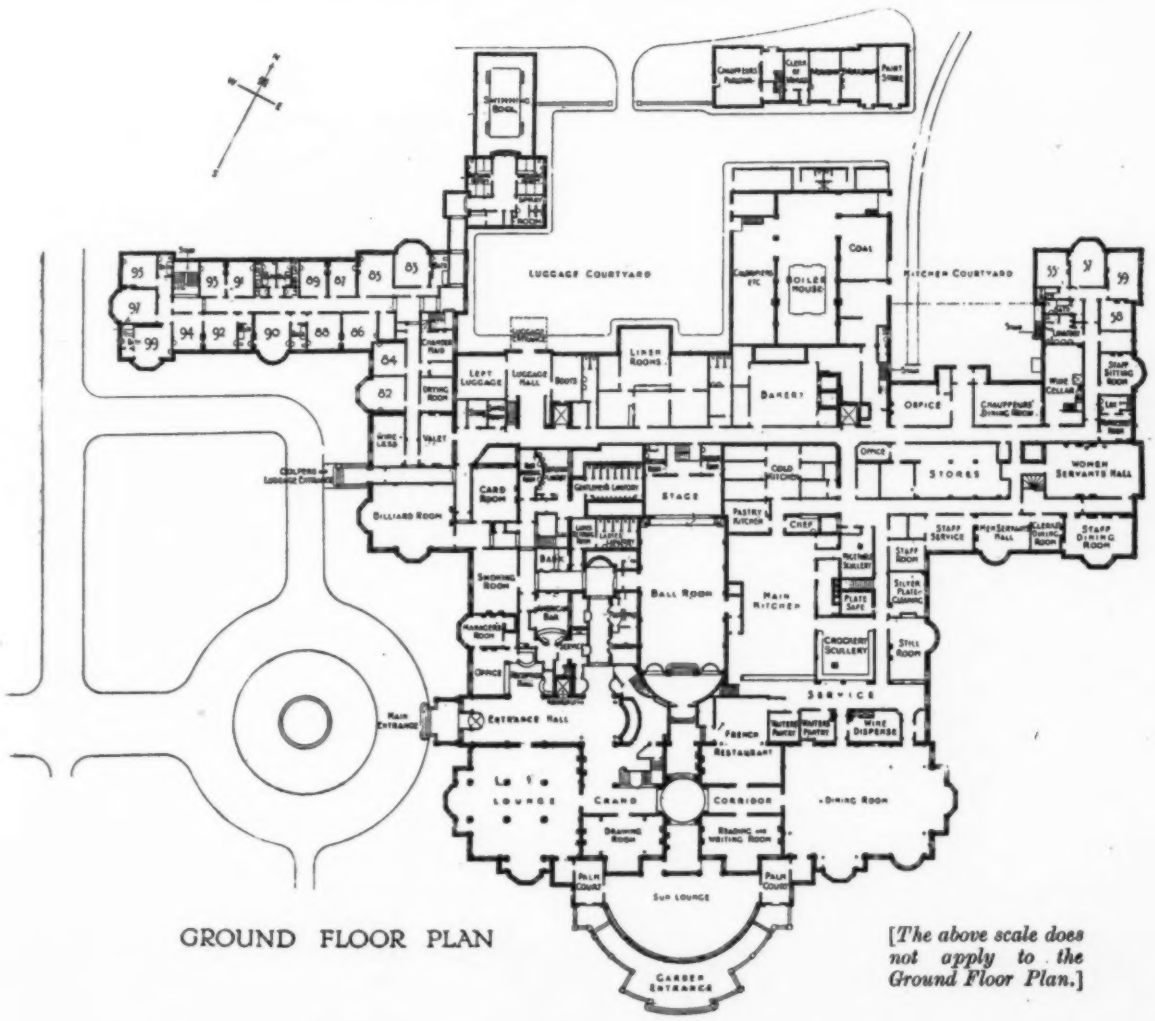
Builders' Accounts and Costs. By Robert C. Legge. (London: Sir Isaac Pitman & Sons, Ltd.) Price 2s. 6d.

**Gleneagles Hotel.** Mr. Matthew Adam, Lic.R.I.B.A., Architect.




FIRST FLOOR PLAN

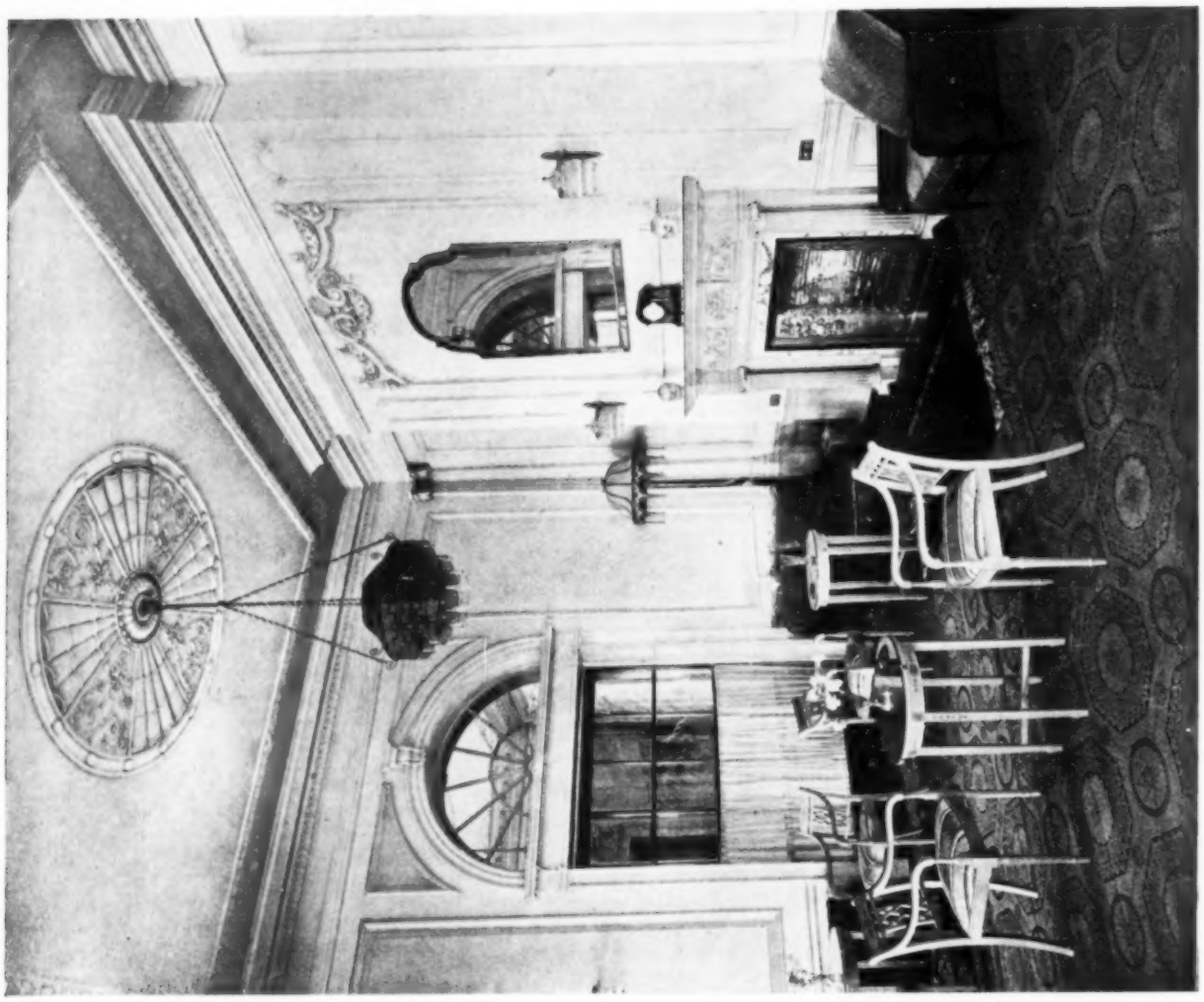
SCALE OF FEET



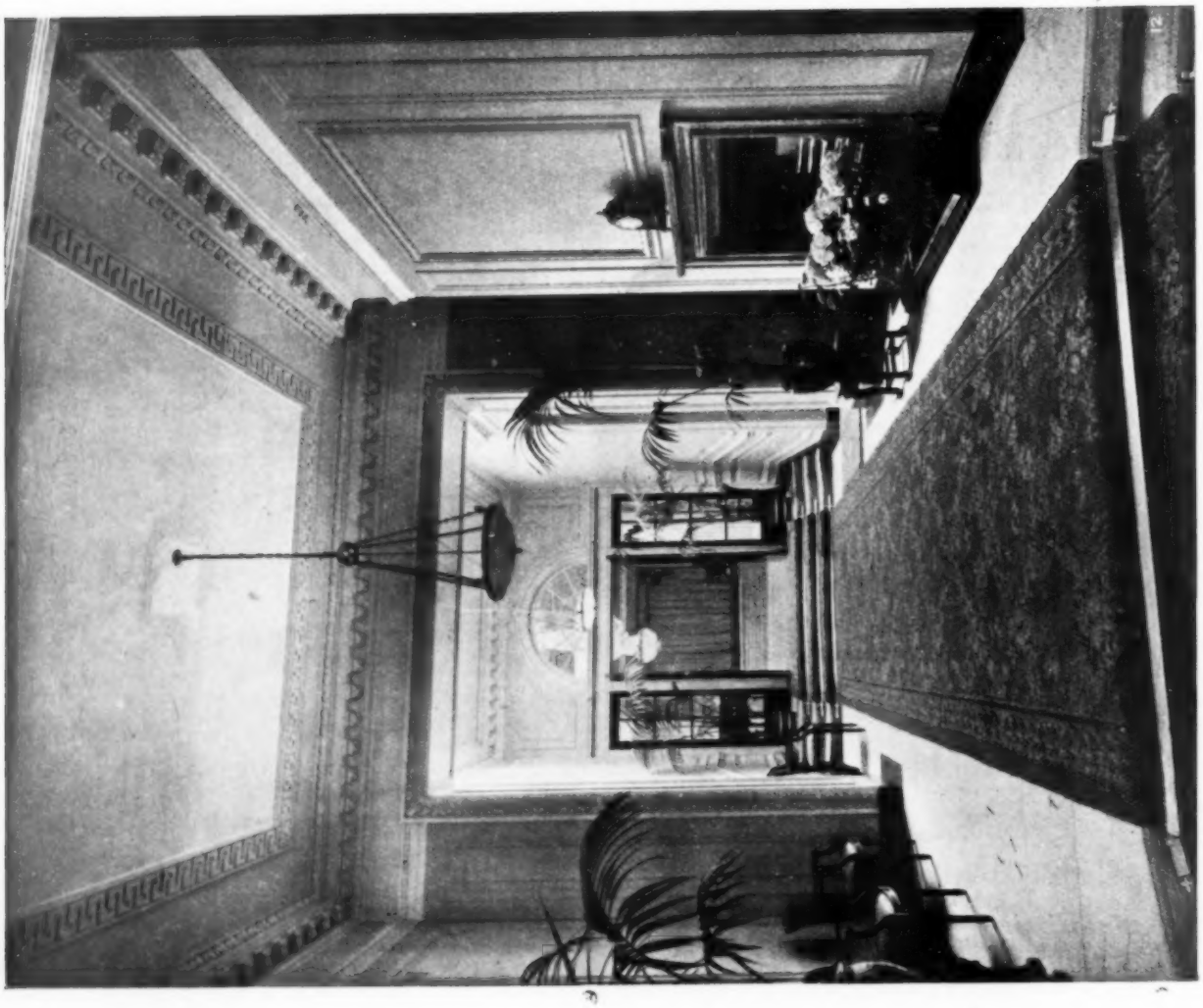

GROUND FLOOR PLAN

*[The above scale does not apply to the Ground Floor Plan.]*

**Gleneagles Hotel.** Mr. Matthew Adam, Lic.R.I.B.A., Architect.



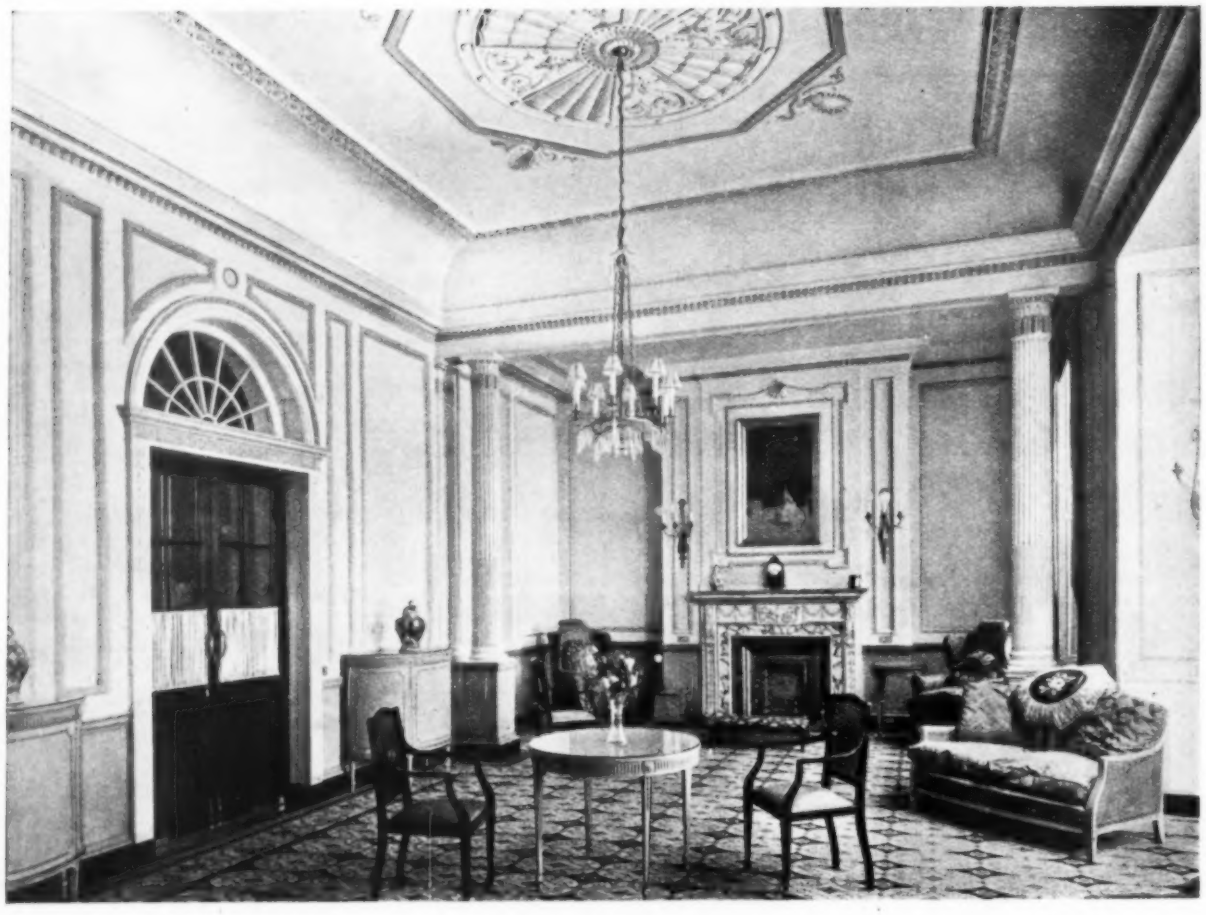
Corner of Lounge.



Corridor from Rotunda to Ball Room.

Gleneagles Hotel. Mr. Matthew Adam, Lic.R.I.B.A., Architect.

Architectural



Drawing Room.

The Lounge.

**Gleneagles Hotel.** Mr. Matthew Adam, Lic.R.I.B.A., Architect.

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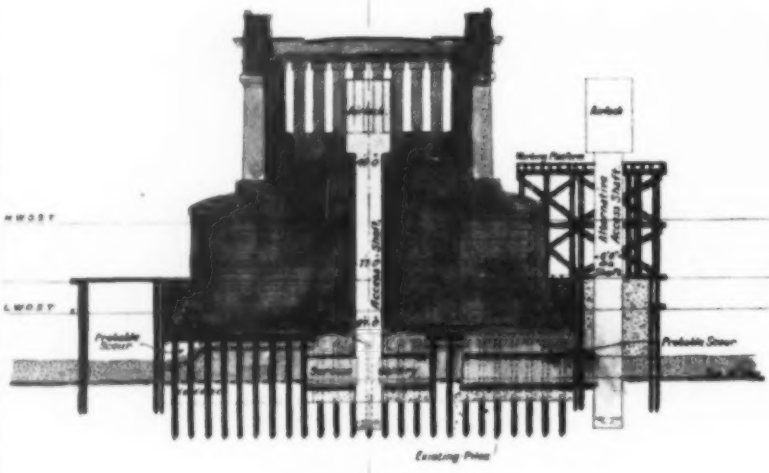
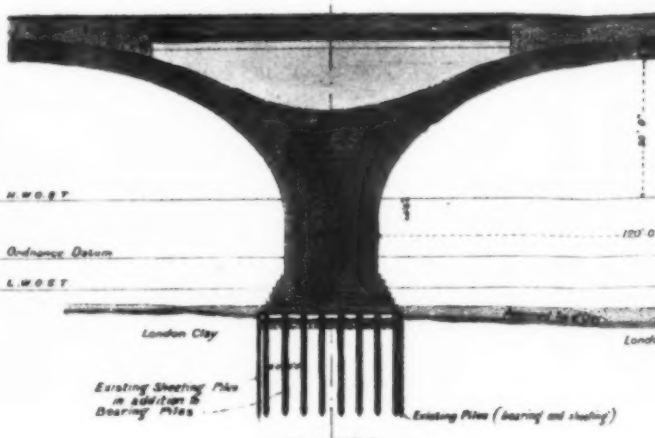
Library

# — WATERLOO

— SCALE 1 INCH = 16 FEET

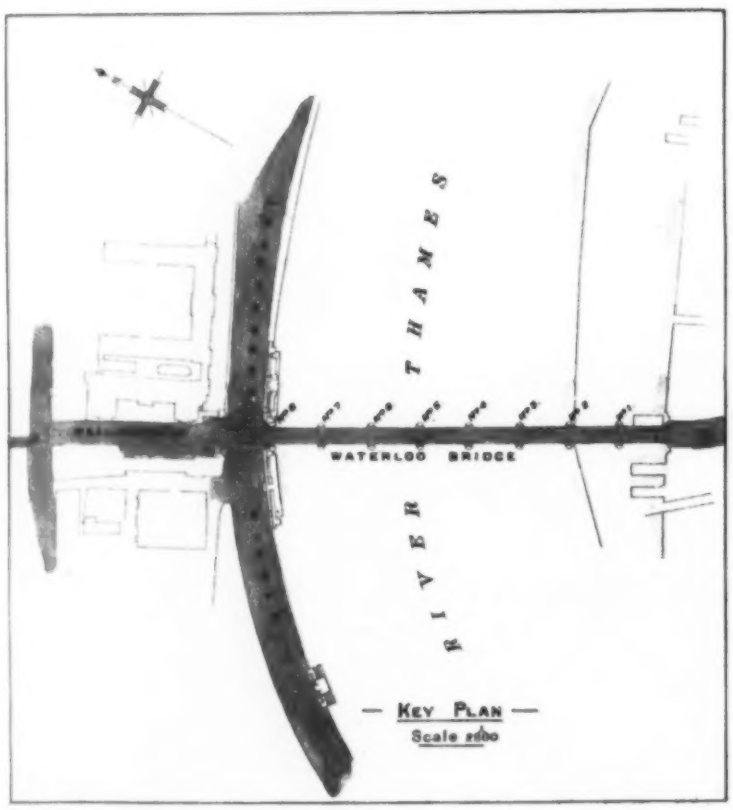



— CROSS SECTION OF PIER Nº 4 —

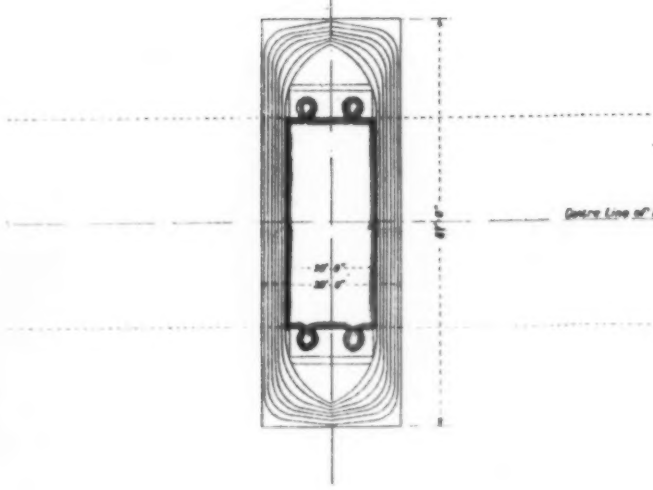



— PIER Nº 6 —

— AS ORIGINALLY BUILT. —




— KEY PLAN —
Scale 1/1200



— PIER Nº 6 —

# ...00 BRIDGE—

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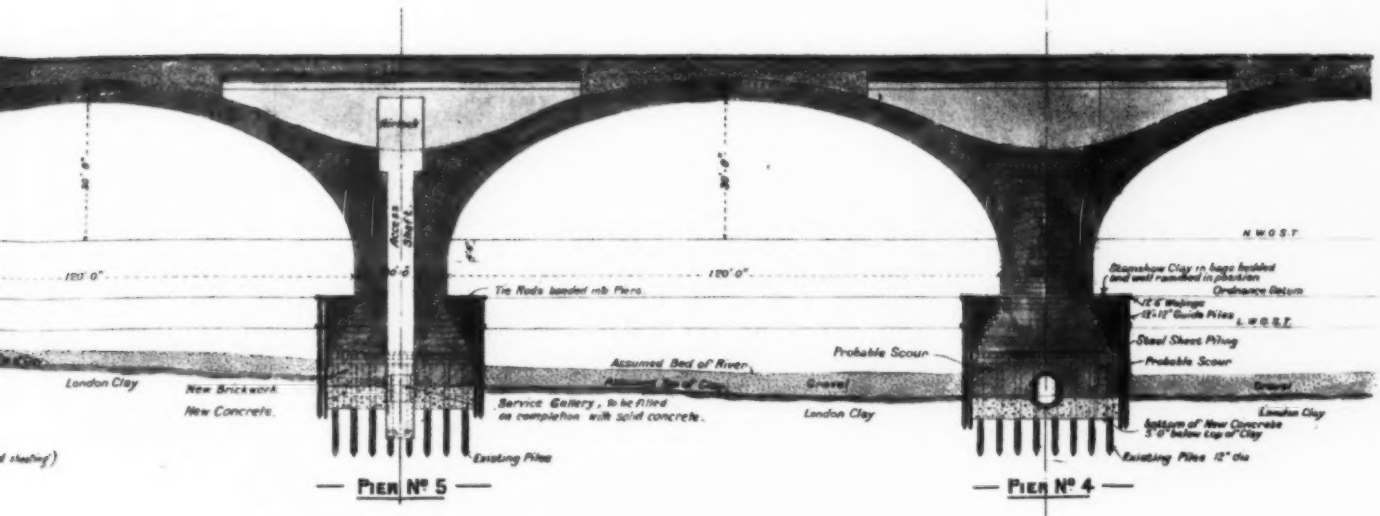
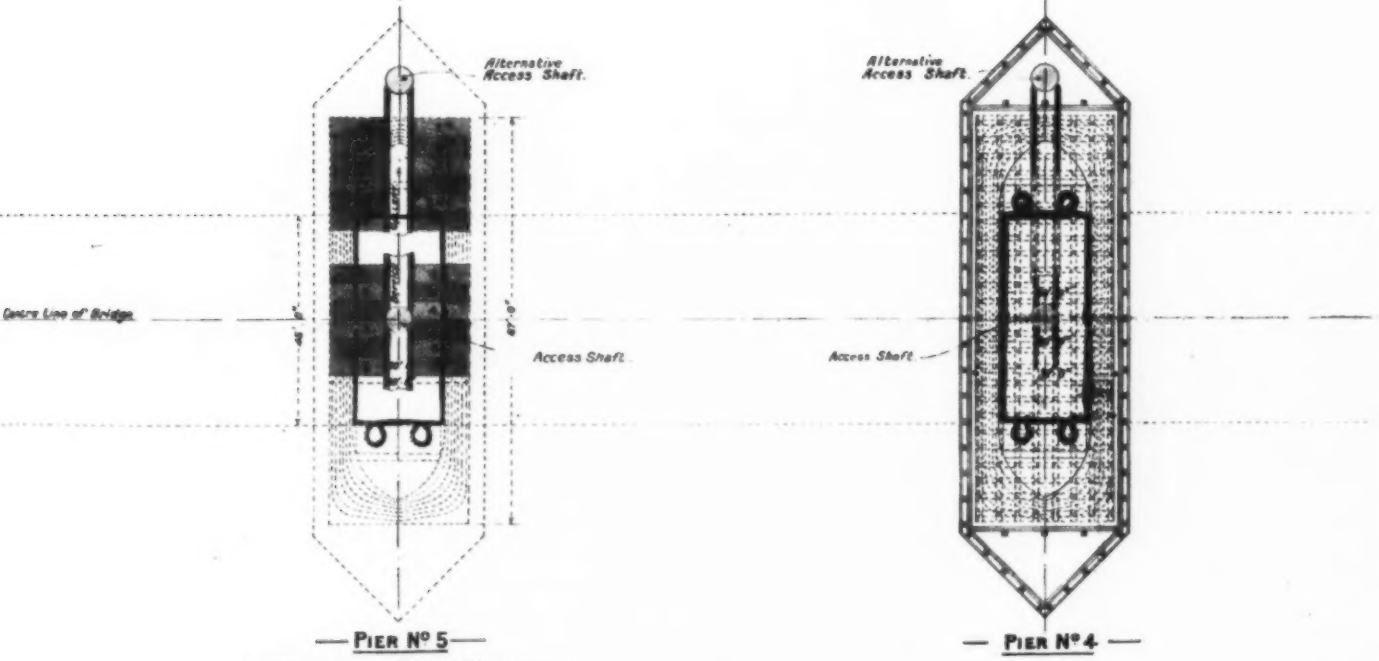



— PIER Nº 5 — — PIER Nº 4 —

— PART SECTIONAL ELEVATION OF BRIDGE —




— PIER Nº 5 —
SHOWING SECTIONS OF PROPOSED UNDERPINNING.

— PIER Nº 4 —

— PART PLAN OF BRIDGE —

HARLEY H DALRYMPLE-HAY
Engineer.
11 Regent St
Westminster S.W.1.

H. DALRYMPLE-HAY'S REPORT.

VIEW FROM SOUTH-EAST.

MAIN STAIRCASE LOOKING TOWARDS FIRST LANDING.

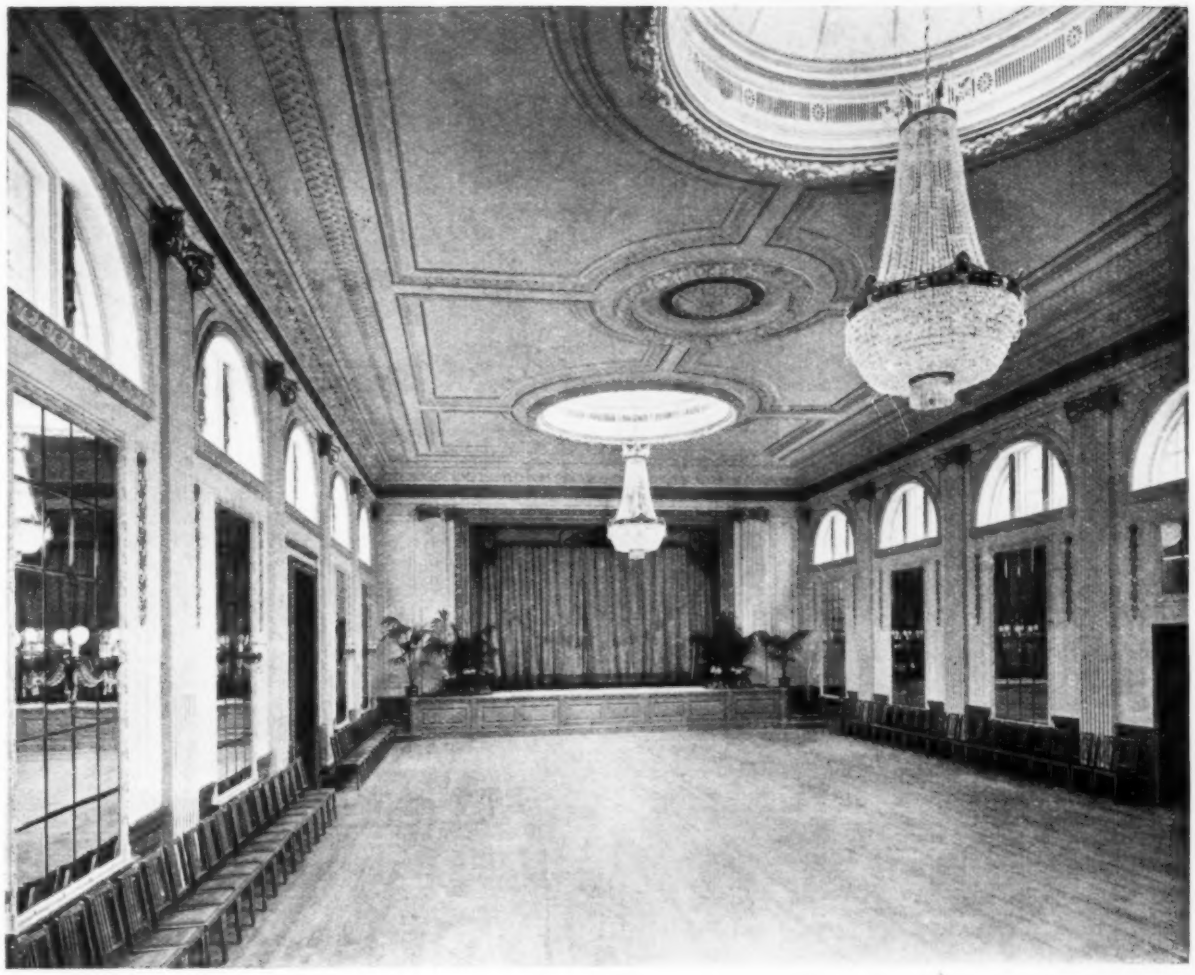
GLENEAGLES HOTEL, PERTHSHIRE. MR. MATTH

VIEW OF MAIN ENTRANCE TOWER.

SUN LOUNGE.

MR. MATTHEW ADAM, LIC.R.I.B.A., ARCHITECT.

Architectural
Library



THE BALL ROOM.

INTERIOR OF ENTRANCE HALL.

**Gleneagles Hotel.** MR. MATTHEW ADAM, Lic.R.I.B.A., Architect.

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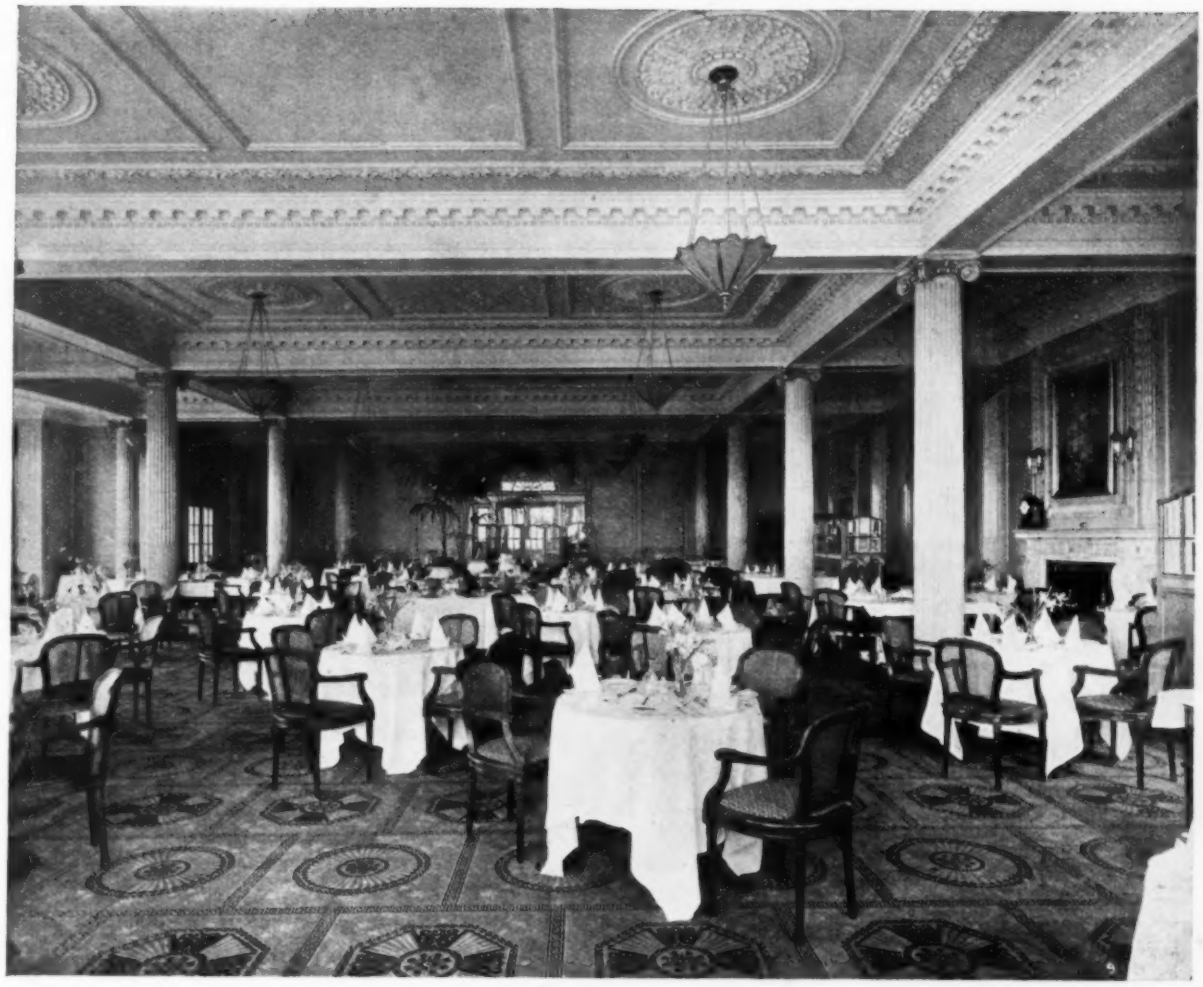


Dining Room.

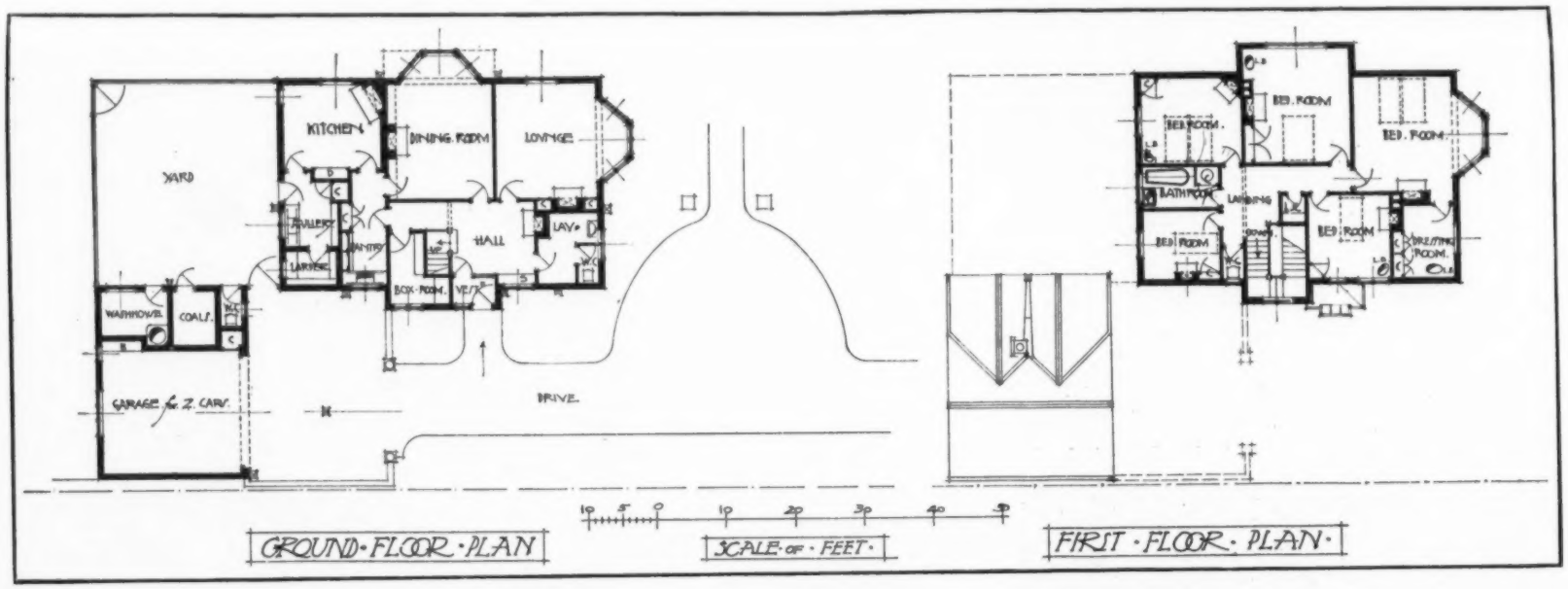
The French Restaurant.

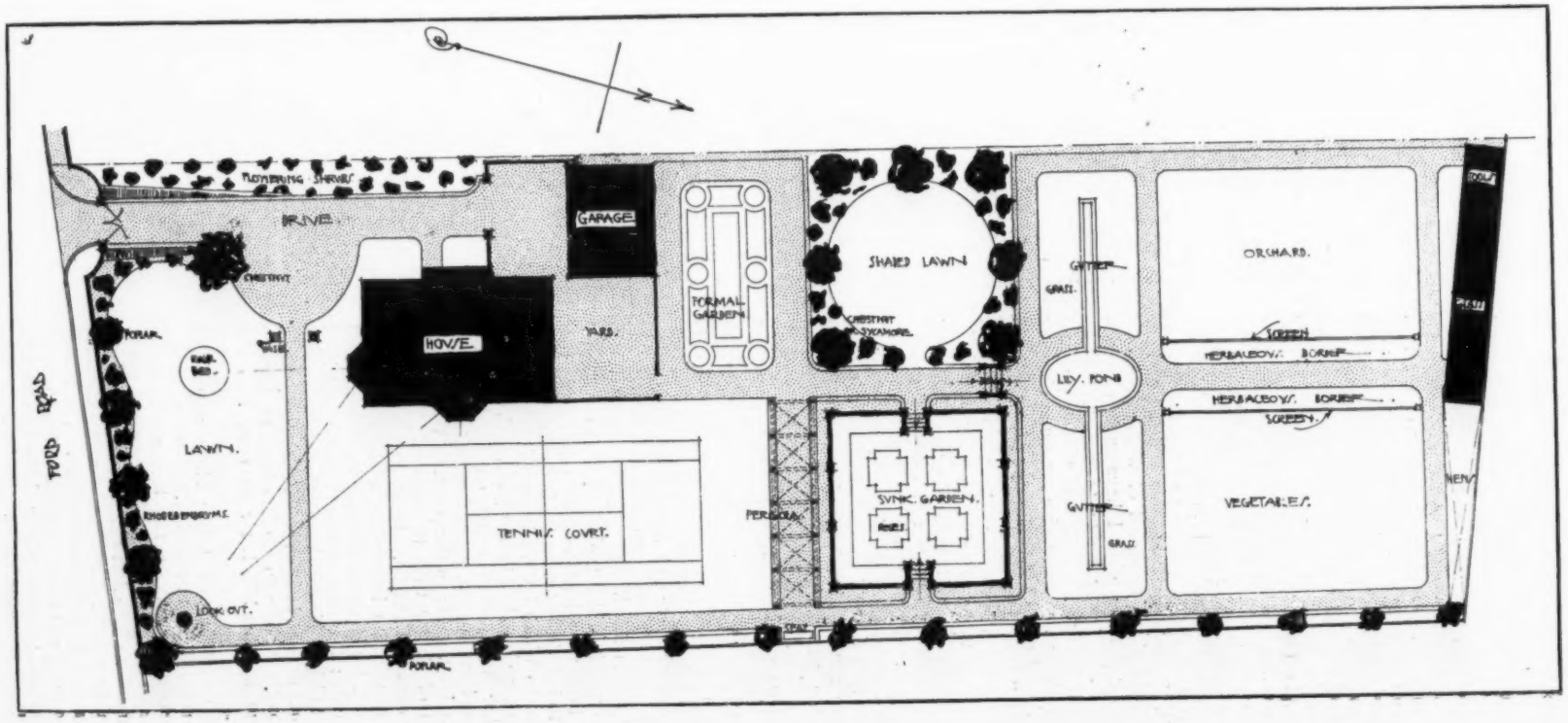
**Gleneagles Hotel.** Mr. Matthew Adam, Lic.R.I.B.A., Architect.

South-East Elevation.

View of Dining Room.

**"Inversneyde," Upton, Cheshire.** Mr. J. E. Rowlands, M.S.A., Architect.




"Inversneyde," Upton, Cheshire. MR. J. E. ROWLANDS, M.S.A., Architcet.

# PHILIP WEBB AND HIS WORK.—IV

By W. R. LETHABY.

## WARINGTON TAYLOR AND THE GROUP.

In the autumn of 1865 the business was transferred to 26, Queen-square, Bloomsbury. Morris now left Bexley Heath to live in the same house at Queen-square. The drawing-room here, when Morris moved in, was painted white. This was the beginning of white interiors in London. One of Morris's wall-papers was called "Queen Anne," and this was probably the first use of a title which was afterwards run to the ground. Warington Taylor was the business manager of the firm in the new premises. He was the son of a Devonshire squire, but he had various changes and chances, and in 1865 "he was earning a scanty livelihood as a check-taker at the Opera House in the Haymarket." Madox Brown wrote, in 1865: "They have a man of more businesslike habits introduced now at Red Lion-square, which I hope will tell in favour of the firm." The general design for decorative schemes continued to be Webb's work. A letter of Taylor's speaks of the decorations at St. James's Palace, "for which you have been paid about one-third of what you ought to be for design: mind I have spoken enough about it." Taylor wrote to Webb, November, 13, 1866: "Report real visible progress at the Palace, so as to give me some cheering news." Later (January, 1867) he wrote again: "Please order Campfield or Dodds to collect your drawings made for the Palace decorations to be returned to you."

In 1866, Mr. and Mrs. Morris, Webb and Taylor went to France and drove from Sens to Troyes, stopping on the way in Paris, where Morris, after searching for books on the quays, took himself to bed. Burne-Jones was to have gone, and a funny drawing which he sent the party was preserved by Webb. It showed E. B. J. left behind, standing on the shore of England, symbolised by a factory blackening the sky with smoke, while over France is a blazing sun. I find a record of this journey in sketches by Webb of stained glass at Troyes Cathedral on June 18, and another sketch at Nogent-sur-Seine. The stained glass of the firm was still a principal thing in his mind.

The way in which the affairs of the "Firm"—at first very infirm—were conducted from 1865 to 1870 is best recorded in a series of letters written to Webb by Warington Taylor. These letters have been lent to me by Mr. S. C. Cockerell together with some notes on Taylor's life. He was born in 1835, entered Eton in 1848, and left in 1850, going to Germany.* Webb often talked of Taylor with tenderness. He was a truly earnest Catholic. In Germany he must have remained a long while, and he evidently travelled, for he spoke of being in Hungary and Wallachia; it remained something of a spiritual home to him. He told Webb that when he first went out dressed in Eton guise, the people would rush to their doors to see him pass, exclaiming "There he goes!" Later he went into the Army.

His romantic and tragic story was early terminated by consumption. Soon after his engagement to manage the business he broke down and had to go and live on the south coast. His direction of the firm's affairs was thenceforth intermittent and largely from a distance, though still of a vigorous nature. The letters to be quoted will show his relation to the group of remarkable men who formed the firm and his special reverence for Webb. At the same time he helped and interested Webb by discussing music and books—especially philosophy, economics, and criticism.

Taylor made some contributions to the work of the firm, discovering old furniture, which was suitable to be repeated, and giving general advice. Thus:—

"*Memo on Furniture.*—A glass of hot brandy and water, if slightly upset, produces an ugly ring on an ordinary *French-polished mahogany* table.

"At all dining-tables you are continually subject to have this upsetting of wine, brandy, &c., consequently constant re-French-polishing.

"On our stained black and green furniture, these marks become much more offensive—the stain comes off, re-polish or not, mark remains.

"*Summa.*—I do not think stained furniture is practical, we ought to be content with natural wood.

"*Oak* is always cracking. With heavy Elizabethan furniture this does not matter, but with our furniture which, in some way, resembles the highly polished hard-wood work of the last century, such cracks are inconvenient and out of place.

"*Summa.*—We ought to use only walnut; if you cannot get black mahogany, could that dark rosewood, like Broadwood's pianos, be used sometimes?"

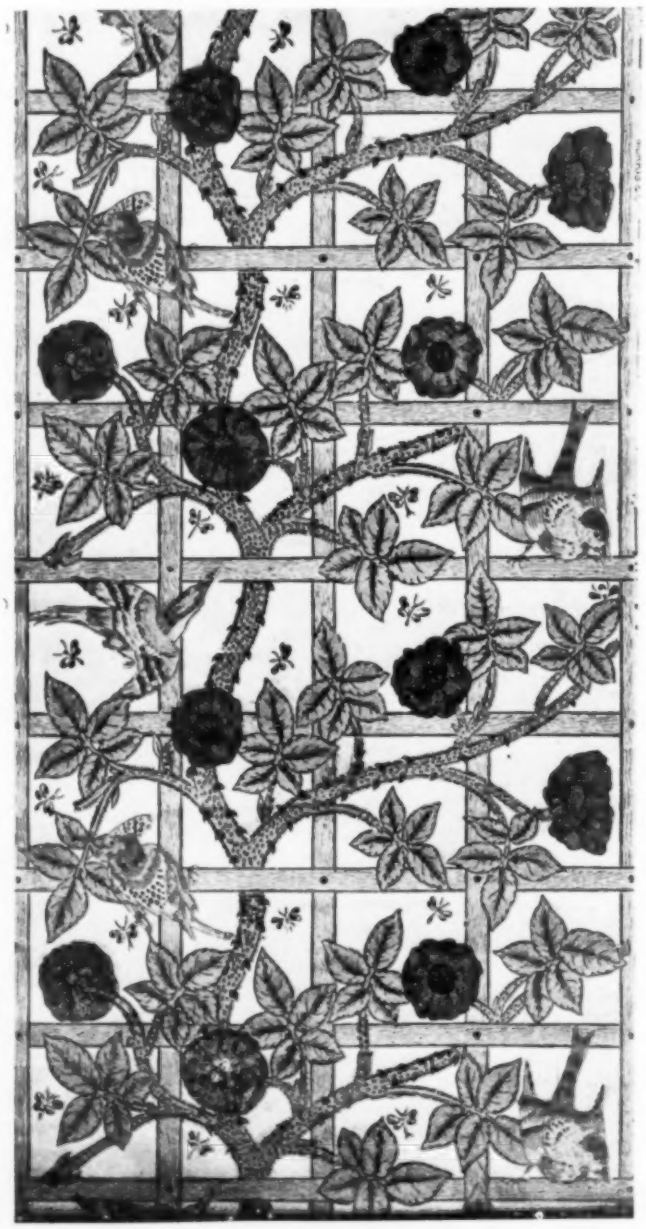
7, Beach Cottages [Hastings],
November 13, '66.

My dear Webb,—I went to see our glass at Langton; it did look so very jolly. The Mary Magdalene is a lovely pink figure, but the recent work now doing is far better, or rather more finished than the early work there.† At Langton, in some of the early figures, there are white robes and no patterns on them, which look cold. Some of the early quarries look thin too there, less work in them than we do now; but the whole work looks very stunning. . . . Come down as soon as you can report real visible progress at the palace, so as to give me some cheering news, but do come soon and bring Morris. Do see that Morris starts about those angels for Cambridge roof now; he will never have them in time, and at the last moment will want others to do the work. How is he looking? I trust well and rosy with good wine. And how is she? I saw the pots before I left; they were fine. . . . Polit. econ. teaches the doctrine get rich—well, you get rich and you become a blackguard; where is the gain? . . . Human reason, what bosh it is! . . . Progress, what rot it is! Do come down and bring the Squire.

Yours,
W. T.

[Also Nov., 1866]. . . . What has been settled about the execution of South Kensington windows? Who is to do them now that Campfield [the works foreman] is ill? This must be settled at once. *See it done.* E. B. J. ought to have sent in first design by to-day at least—*see to it.* Is the Cambridge window going to hang fire? *See to it.* It ought to go off this week. About the Findon tile-reredos, we cannot do it; *see this settled at once.* . . .

You ought to design the panelling for South Kensington [Dining Room at the Museum] at



THE "TRELLIS-PATTERN" WALL PAPER.
Designed by Morris in 1862, the birds by Webb; this was the first paper designed for Morris & Co.

* Miss Morris gives some memories of him in Vol. V of the collected edition of Morris's works.

† Langton Green, Kent. Later work was done in 1865, so the earlier must have been among the first.

once; it is such nonsense to say they don't want it. E. B. J. is to get all the South Kens. window designs done by Xmas. By that time the necessary panels ought to be made and in his house [for painting], so that he may go on with them at his leisure. Directly he receives them and knows the actual size, he is to give an estimate for the whole. . . . See this panelling designed and executed at once, at any rate get good pieces of wood for E. B. J. forthwith. Climate here very delightful; population loathsome. Trade enjoying itself; trade was one of the results of the fall of man. . . . Fallen in with a quack chemist; has views on consumption; great fun; took some of his physic last night. Take care of yourself.

Yours,

W. T.

. . . MacShane [clerk] is perfect now, he keeps the books regularly balanced, has everything in splendid order. You are as safe with him now as with your own bank, nothing better could be desired—great comfort—feel easy. I think he ought to have a present at Xmas—rent—poor old gentleman is very hard up. If money is made out of Palace they ought all to participate, they are none of them too rich, general present to them all, only I am afraid the profits won't be great. I am very queer and frightfully feverish. . . . but I don't care now because I am content that MacShane can keep the books in order. According to his last report everything is now started, *i.e.*, all the important jobs.

Ever yours,

W. T.

P.S.—Do, please, read an "Essay on Pantheism," by J. Hunt; very superficial, but read it.

[With this letter a list of about sixty old mansions, farmhouses, &c., in Sussex was sent.]

Hastings.

Thanks for your letter. It is a bright moment in my Hastings existence to hear from you. . . . endless artists and architects, and last Sunday I must needs meet one . . . defend a man from living in a fashionable bathing-place, it is just like a Club. . . . I went to Rye a few days since, such a nice old town—small ships building below the hill. How Charles Faulkner would be in his element—would he not lay down the law on shipbuilding and mechanics; he would delight in the funny old place. Ned [E. B. J.] has a book on Sanskrit literature which you were to have when he had read it, and you were to give him Renan on Nabathaean agriculture. . . . I do hope poor old Campfield will get over his misfortune without long illness. . . . Near Rye I saw a parsonage building, strong influence of yourself. I enquired the architect's name—Graham Jackson. Must be a clerk of Butterfield's, I should think.

Ever yours,

W. T.

. . . The *Pall Mall* criticisms are certainly more than usually incapable—I refer to the remarks on our Brown [Madox]; of course, Stanhope and Val. [Prinsep] receive high praise. On Legros not a word. They cannot manage to pick out the men of brains; upon Brown they can find little or nothing to say. . . . I trust you are well, my dear fellow, very well, for health is necessary to you to bear up against all the hellish evil of humanity. I thank God my lot has been cast amidst you fellows for the end of my life would not have been pleasant without! Morris is happy in not seeing that all the outsiders would do him a bad turn if they could—look how well they behave to Ned, who does have broad dealings with them! Morris is lucky not to have to live by 'em. A man who is doing real work—and all real work is good in its use for man—the Devil will never leave alone. . . . Old Catholic prayer "to thee we sigh weeping and mourning in this vale of tears." How true and yet how shamefully one shirks this necessary trouble!

Ever yours,

W. T.

December 27, 1866 (?).

My dear Webb,—Make up your book, charge every item, and a proper amount for general direction. . . . Send in to MacShane, because he must now make up books. . . . Campfield here on Sunday, reports very bad of MacShane, poor old gent. very ill—just see that a cheque is drawn out for him at once. . . . See that he does not want, and do it in a systematic way; if you go and ask him what he wants he will tell you 2d.—poor old man is so modest and honest. Just remember we are embezzling the public money now—what business has any palace to be decorated at all? We drink wine, we travel, we rob. . . . . Mind no humbug, you draw the cheque for your work directly money is in, or else you will be in arrears. I think as Morris has had his health impaired by exposure to climate, overwork, that he ought to have a douceur. . . . Come down Sunday. Saturday there are pheasants and woodcocks from my brothers. I have done an awful amount of modern reading—4 vols. Dyer's "Europe," 2 vols. Lecky's "Rise of Rationalism." Do come down. I know Morris won't stir. . . still it would be a tremendous pleasure to hear you two fellows talk for an evening once more.

W. T.

7, Beach Cottages.

My dear Webb,—Had not heard of MacShane's death. I feel quite ashamed of being alive. . . . Something must be done with decision. C. Faulkner will not be in town for more than a week. I am not worth a "cuss." . . . You have to decide as to what you intend doing—any clerk you get is in a very responsible position. . . . I have seen so much of down-the-road life, when a man begins to descend in the world he must have unusual moral in his backbone to keep him straight. Sandwiches are often decayed gents. I did a good deal in the descending line myself, and I observed those about me at that period. Old MacShane was a gentleman in his way, educated in a Jesuit College. . . . There must be more decision or within 6 months you are in a muck.

*Summa*, it is your business to call a meeting and settle at once what you are going to do—and just you see that you don't talk rot but decide definitely because generally the time would be better employed in a comic song. Of all things British muddle is the worst. Morris confesses he is a Celt, and we know what that means in the practical line. . . . You may be quite certain that you will charge £9 for that which costs you £10. I *know* your ways of calculating profits. . . . When shall I be able to get £20? I don't think the cost of my carcass and my mate's is now under £5 a week; this can't go on. Waste of money.

W. T.

I send you Paget's "Hungary"; it is an excellent book of its kind, and one you ought to have. . . . The account of Hungary is in the main perfectly good to the present day; I was there; I found it everywhere most accurate up to what I know—not much. . . .

I must confess to a want of interest in Greeks . . . saw something of this sort of thing in Wallachia—prejudice, no doubt. . . . What is Ned to have apiece for his panel pictures [at South Kensington?] and what are we to charge? See this properly done. . . . The Guv'nor and Ned are our Michael Angelo and Raphael.

17 May, 1867.

My dear Webb,—At the meeting of the firm last night, F. M. Brown, D. G. Rossetti, E. B. Jones, W. Morris, present, it was agreed:—

"To offer P. Webb £80 per an. as consulting manager of the firm; to commence from last January."

Moved by F. M. Brown, seconded by D. G. Rossetti.

Yours truly,

W. Taylor.

Webb must have written to object, for a private letter from Taylor followed:—

My dear W.,—1. Your time is occupied every week about 4 or 5 hours with giving advice to the firm about windows; then to Stennett about arrangement of pieces of furniture.

2. Therefore you have to be paid for this. I will not send or allow you to be called upon for any object of business of the firm; as a matter of delicacy I cannot trouble you for allow you to be troubled, unless you are paid for it.

3. In consideration of this the firm at its last meeting desired to make acknowledgment of this debt to you and therefore voted an income dating from last Christmas.

4. In order that I may get a living, that Morris may get extra money, it is absolutely necessary to appeal to you from time to time on these matters of business. We could not move another step without your professional assistance, and therefore if you will not be paid the firm must come to a stop—because sponging upon you is degrading.

Yours,

W. T.

[May, 1868].

My dear W.,—I have lately been quite wonderfully well—able to read a couple of Morris' poems; how simple and splendid they are! . . . I have no patience with William Rossetti and his Walt Whitman; because a man has not the will to choose between evil and good and pretends it is all good, he is called a philosopher, a man to influence the times. . . . William Rossetti, with his bigotry against Germany, does not know what a philosophy is, and falls back on writing up Swinburne. . . . When are you going to begin the Lincoln's Inn house?

Yours ever,

W. Taylor.

. . . If you want to be jack of all trades you must have separate staffs—Peter Robinson does not do his mourning business in his bedding warehouse. . . . With 12 men being made to do one day one thing one another, we can only have disorder and loss. . . . You cannot manage more than one class of work (glass) with one establishment. If you can make that pay it is as much as you can do. Kensington is a lesson in being jack of all trades.

*Conduct of business.*—There is a tendency at Queen-square towards extravagance in the business. My own wretched health and inward worry have rendered me useless. *You* must take up the question and preach economy—retrenchment. . . . No rise of wages or extra expenses are possible now. . . . Now please, you take up the firm's affairs and insist on economy. We only did £1,900 of glass this year.

*Memos.*—I was at the firm yesterday and spoke strongly on the necessity of economy. If people come to us now to paper a whole house, they choose from our present stock of 11 papers; this has been frequently done.

Considering the few interested in decoration and limited sale of our papers there will not be any increase of sale of papers by the addition of a few more patterns; in fact, you will probably sell fewer of the present old patterns. . . .

Two new patterns would for all business purposes be abundant—Townsend's "Bird" and Scott's "Indian."

The wages are very high in proportion to production.

I was very sorry to hear of your opinion about two important debts. . . . Is the firm to act definitely on the grounds that it considers itself injured, or are the debts to be openly forgiven? . . .

[July, 1869 ?]

*Memo.*—We must have an end to this. . . . Is everybody to be allowed to do as he likes? Ned, W. M., and Gabriel egg one another on to every kind of useless expense. How long do they intend to play boy? They have all got grey hair in their heads. Our balance sheets are strained to the last penny to please W. M. It is disgraceful such childish conduct. . . . I have written to the firm, to W. M., and to Gabriel. Everybody is doing his best to ruin us. Civility has gone on too long. . . .

*Memo.*—What is absolutely necessary to save the firm from ruin is this: Someone must see the books weekly or fortnightly. . . . We want from you vigorous, stern action, if the firm is to be saved. If you do not act no one else will. Everyone treats it as a joke. . . .

Remember that we have no moral obligation in the matter [of the debt] at all. If it were a poor man in misfortune, we should be bound to forgive the debt. . . . Only as men let our work be done with severity—no playing at it.

Aug., '69.

I do not care to push to legal extremes. I only want the dignity of the firm maintained, and to let it be understood that we in no way sanction as a body the slightest irregularity of life. . . . Without some sort of tone is kept up the firm must sink, for no society ever lasted yet which ignored the fundamental principles of morality.*

Taylor's last letters, written apparently late in 1869, contain these reflections:—

"*Memo.*—The absence of any practice of severity upon the senses in conjunction with the theory that artists produce only to please themselves is not conducive to morality. In the whole range of artistic biography you find no character at all resembling St. Paul, Augustine, Benedict. I have always thought since the day I heard it that the dogma, 'Artists produce to please themselves,' was very unsatisfactory and dangerous—if you allow unlimited licence to one sense you are not likely to put much pressure on the next. Stoic virtue is to please the intellect; the intellect is delighted with its power over the senses. Pauline virtue is out of awe, respect and love of the infinite Supreme Being—a much higher conception of morality, surely, aims at the unseen Perfect."

"Philosophy is, of course, unpoetic; the poet dislikes dealing with that which has no visible form. Goethe hated Hegel; but one must love each science in its sphere."

"It appears to me Beethoven finished music before the age of uninvention commenced in Germany. He and Goethe stand alone in Germany, all the rest are pedants who try to make up for deficiency of invention by ponderous laboured learning. Men like Ritter, Hegel, Jean Paul, Ewald, got their reputation by obscurity and prolixity."

"Wagner's unbounded vanity has brought him to grief; although a man of invention, he is neither Beethoven nor Goethe."

"The country will sink for its money worship and vulgarity."

"Dear P. W.—I am reading Lecky's 'History of Morals.' It is a very good book; the exposure of utilitarianism is good. The weak point is his own position, I think. Why not go on to St. Thomas [Aquinas] at once? It is no use sticking half-way. . . .

"It is based upon an uncritical belief in the gradual progress of humanity. All the ulcers he cannot cure he leaves to progress—never questions the existence of progress. He sees that modern life is entirely destitute of the virtues of Christ, that it cares nothing about humility, self-denial, purity of intention, that it only worships strength and success—progress. It is bald Pantheism, man becoming God—as man cannot change his essence he must be God—Creator and created must be one essence. . . .

"But through all this he had admiration of Catholic virtue, but considers it all gone—progress has taken its place. . . .

"My dear P. W.—Many thanks for the book you sent me. I have been reading it; it is a wonderful piece of English. . . . I have gone past the period of life when a tale can interest me, as a young man it may have had its effect. I learnt something about human actions. . . . The acts of humanity seem to me to be so serious, both as regards existence material and spiritual, that I care only to think about them when treated of as ethics and moral theology. At this late period of my life it appears to me as if the whole range of art made a dead set at human morality. The only art that I can see is not necessarily sensual is architecture. It is evidently time for me to depart out of life."

. . . . . .

Warington Taylor died February 12, 1870, before he had reached the age of thirty-five; his funeral and other final expenses (£89 19s.) were borne by the firm, and Webb personally. His tombstone at St. Thomas's, Fulham, was designed by Webb.

His place was taken by George Wardle, who also served the firm well. It may be mentioned here that Mr. Albert Goodwin was at one time employed by the firm; so also were Fairfax Murray, Napier Hemy and Mr. Brangwin, and, through Burne-Jones, from 1869, Mr. Thomas Rooke, and later still Mr. George Jack.

That the economic position of the firm was precarious in the first ten or dozen years of its existence may be seen from Taylor's letters, as also that its internal policy was most generous.

Mr. Aymer Vallance says "There was all but unlimited freedom of criticism admitted between employers and employed, a freedom that virtually amounted to equality of condition between them." After the Exhibition of 1862 the staff was entertained at Red House, Bexley Heath.

Morris told Walker that Taylor was the first person who instructed them how to charge for work; before that they had a general idea that 5 per cent. was the usual reasonable profit. Miss Morris thinks that Taylor's care saved the business. A note of Webb's says, "I first saw Warrington Taylor" (he signed his own name Warington) "when Great Ormond-street was my home. He called on me with no introduction save that Gabriel Rossetti had told him of me, and I believe he must have introduced himself to the rest of our community in the same way."

After a dozen years of existence difficulties arose by the nature of things in a venture undertaken with so loose a bond. In 1873 Webb wrote a long businesslike letter suggesting the dissolution of the company, and meetings to consider this were held in 1874. The original firm was legally dissolved in March, 1875. It was stated at the time that Burne-Jones and Webb, though no longer partners, would continue to help with designs for stained glass and furniture as before. Under the date 1875 in Webb's account book appears (not in his writing) "Arrears of salary, £640," and on opposite side "Claim for salary renounced." The last entry in the book is dated 1878.

Webb, writing many years later, said of the stained glass:—

To A. H. P., 19 December, 1904.

". . . In trying to combine art with the crafts there seem to me only two ways of making it—in the Devil's slang of these times—'pay'; one is to make comparatively few articles of a costly kind and do them all by skilled designers in a small way. . . .

"Stained glass was only so far a success in that there was a rapid and skilled designer who would supply designs, and W. M. could keep the colour right, but it never could be right good craftsmen's glass, because there were no draughtsmen who could translate the beautiful pictures [of E. B. J.] into effective painting *for* glass. Also it was impossible for W. M. to make the glass and burn it in his own kilns. In a way the glass was surprisingly good, but more by comparison with such work by others than because it was good craftsman's glass—which it never was nor could be under the conditions possible."†

I have felt it difficult to set down these details, for Webb would have objected, and it might seem that I want to subtract from Morris's part in the earliest works of the firm. That, however, is impossible; Morris was not only "great," he was so large that I could have no thought of detraction. Moreover, his leading position within the group was just what has been supposed, but both Webb and he did more than is known. In a letter which I have, Webb calls Morris "that great master." His strength can only be fully known by his contemporaries, for no collection of his work such as could have been made at little cost exists. He was the greatest pattern designer we ever had or can ever have, for a man of his scale will not again be working in the minor arts. His work was sweet and noble in every curve of line and stain of colour.

Webb, telling me once of the old doings, ended up: "The best of those times was that there was no covetousness; all went into common stock—and then, we were such boys."

[The following accurate details regarding the Morris glass in St. Martin's Church, Brighton, have been given to me by Mr. W. W. Begley, who gathered them from Fairfax Murray, Mr. Marillier, and others. The foundation stone of the church was laid at Michaelmas, 1861, and it was consecrated on the following anniversary. The Morris windows are: (a) the west, (b) a small one by the font, (c) two in the south chancel aisle. They date from 1861-2. (a) The upper part of west window is by Burne-Jones: in the lower portion are (1) Michael, and (2) Raphael (with Michael and Lucifer in circle above), (3) Uriel, and (4) Gabriel (with Annunciation in circle). (1) and (3) are from designs by Madox Brown, drawn full size by Morris and retouched by Brown; (2) and (4) are by Morris—"These cartoons were made Sep.-Dec., 1861." The Annunciation is by Morris; Michael and Lucifer is uncertain. (b) is by Burne-Jones; "the cartoon for the two angels were re-drawn probably by Philip Webb; they are now in the Birmingham Art Gallery where they are catalogued as being probably by Philip Webb; the coloured sketches are at the Fitzwilliam; this window was presented by Bodley." (c) One of these, "The Flight to Egypt," is by E. B. J.; the second, "The Women at the Tomb," is by Morris. I may add that the designs by Madox Brown for (1) and (3) were lovely drawings about three feet high; they were in the possession of the late Mr. Alan Vigers. The window itself, of so composite origin, is a most harmonious and delightful work. Other early Madox Brown designs for glass are at the Central School of Arts and Crafts, Westminster Technical Institute, V. and A. Museum, Birmingham Art Gallery, etc. He is said to have made about a hundred and fifty for the firm.]

## THE CHARM OF BRICKWORK

Sir Banister Fletcher's recent lecture—the last of the present session at the L.C.C. Central School of Arts and Crafts, on mediæval architecture—dealt with Belgian and Dutch architecture, referring first to the very varied history of the two countries, Holland and Belgium, and the influences which differentiated their architecture. Catholic Belgium had evolved a rich and sometimes effusive style of brick and of stone, in which the prosperous-looking civic buildings of Belgium's cities were erected. In Protestant Holland, on the other hand, a barer and more stolid style became common; in both countries the characteristic brick, of varied hues, was used, and produced the picturesque groups of buildings which had become familiar to English people, and much influenced their architecture in the seventeenth century. Many interesting lantern slides showed the most important buildings of the two little countries, with all their elaboration of traceried windows, pinnacled buttresses and lace-like spires; some of these enchanting monuments had become dear to the English traveller and were yet more precious now that some of them were sadly mutilated as a result of the recent conflict.

Next September a new course of lectures will probably be given on Renaissance architecture.

### The Burma Pavilion.

The whole of the panelling lately exhibited in the Burma Pavilion at Wembley is shortly, by order of the Government of Burma, to be sold, without reserve, by Messrs. Joseph Hibbard & Sons. It includes 30,000 square ft. of solid teak wall panelling; Indian laurel, haldue, and mahogany panelling; and numerous examples of Burmese art in silver, bronze, and ivory.

* Some letters to Webb written by Morris from Ems in 1869 are printed in the collected edition of his works. To "My dearest friend," they tell of writing "The Earthly Paradise," and his walks, one along the Lahn Valley, reminded him of "September 2 or 3, '58, and Caudebec."

† For the fullest account of the windows done in the early days of the firm, see "A Note on the Morris Stained Glass Work" (Morris & Co.). This contains a list beginning with Scarborough, Brighton (two churches), Selsey (Glos), Darley Dale, Lyndhurst, Kentish Town, Putney, Cambridge (Peterhouse), &c. From 1875 and onward Webb did some heraldry, &c., for windows at Deadworth (near Windsor), Hopton (Yarmouth), and Tamworth. Mr. Holliday tells me that Burne-Jones made the designs for the east (rose) window of Waltham Abbey in 1860. As early as 1857 he had designed some windows for Bradfield College Chapel. Both these works were executed by Messrs. Powell, for whom he also drew an Annunciation for a Yorkshire church.

# WATERLOO BRIDGE

## MR. DALRYMPLE-HAY'S PROPOSALS

In view of the conflict of opinion as to the possibility of satisfactorily underpinning the piers of Waterloo Bridge, we have been asked to give in full the report presented to the Society for the Protection of Ancient Buildings by Mr. H. H. Dalrymple-Hay, M.Inst.C.E. The illustration accompanying Mr. Dalrymple-Hay's report is given on an inset sheet with this issue.

The report is as follows:—

The avoidance of interference with the structure should, I think, be kept prominently in mind when considering any scheme for the repair of the foundations, in view of the fact that the Bridge is undoubtedly recognised throughout the world to be a masterpiece of arch bridge construction.

The drawing shows (*a*) the character of the foundations of Piers Nos. 4, 5 and 6 as ascertained from Rennie's description of the Bridge in the Library of the Institution of Civil Engineers, and which may be considered typical of them all; (*b*) the nature of the underpinning and temporary work which would be required according to my proposals hereinafter described so as to render the underpinning work capable of accomplishment. A block plan of the river and bridge at the point in question is also shown.

Counting from the Surrey shore, Rennie states that piers Nos. 1, 2, 3, 4 and 5 are constructed on the gravel, and the remainder on the solid blue clay. Pier No. 4, which is in the fairway of the river has, according to the evidence in the press, subsided more than any of the others and is shown on the right-hand side of the drawing. Under this pier I believe the gravel has a thickness of about 7 ft., with the blue clay immediately below it. The type of foundation adopted by Rennie consisted of a number of 12-in. diameter round timber piles driven into the clay bed of the river. These piles were sawn off level at their heads, and directly above them were placed transverse timbers 12 in. deep by 14 in. wide. Longitudinal timbers were next laid above the transverse timbers vertically over each line of piles, the whole being secured to the piles by long wrought iron jagged spikes driven through the centre of each pile. The "loose earth," as Rennie describes it, between the pile heads, was removed to a depth of 12 in., the intervening space being solidly filled with stones well rammed down. Above this stone course, to the level of the top of the longitudinal timbers, the spaces were filled solidly with brickwork and masonry. Timber decking 6 in. thick was then spiked down to the top of the longitudinal timbers, thus forming a stout timber deck or platform as a foundation for the pier. The work was executed within the area of a cofferdam driven round the site of each pier, and the masonry of the piers was then built upon the timber decking. The arches were turned on special centering carried from timber struts bearing on the stone footings on each side of each pier.

This type of construction is common to all the piers, but in the case of Piers Nos. 6, 7 and 8, where alone Rennie anticipated that scour might adversely affect the foundations, he supplemented the work already described by enclosing the foundations within continuous timber sheet piling, thus shutting up these three foundations, as it were, each in a box.

In the case of Piers Nos. 1 to 5, inclusive, each of which is founded on the gravel, he did not provide close sheet piling or other protection against scour, but placed the level of the platforms well below the river bed, which he claimed was an improvement on the ordinary practice of the period, which was to fix the level of the timber platform above the bed of the river.

Old drawings of the bridge seem to indicate that the bed of the river was at a much higher level than it now is. Without exact information as to its present level, I have assumed the level shown on the drawing, as in the press it is stated that the bearing piles of Pier No. 4 are exposed. The exact level of the river bed, however, does not in any way affect the conclusions I have come to as to the proper method of dealing with this problem. The above is a short description of the two types of pier foundation adopted by Rennie.

Referring now to Pier No. 4 in particular, which is that most seriously affected, it conforms to the type which has no protective sheet piling and consequently in the event of scour around it the gravel overlying the clay would be liable to be washed away. In all probability this pier has actually suffered in this manner, with the result that the supporting power of the piles has been lessened and the pier has in consequence subsided. From recent references in the press I understand the Council have attempted in some manner (as to which I have no particulars) to secure the foundations of Pier No. 4, but the results have apparently not so far been satisfactory, as I believe the subsidence still continues. It appears that as subsidence has recently taken place on so large a scale at this pier, and fearing it is only a question of time before the other piers will develop like weaknesses, the Council propose to take down the entire bridge from end to end in order to rebuild it on new foundations, as they state that this is the cheapest way of dealing with the problem. The Council further propose at once to provide a temporary bridge alongside the existing structure to carry the traffic during the rebuilding operations. It is stated in the press that the temporary bridge will take about nine months to build.

It appears to me that the problem, simply stated, amounts to the replacement of the existing timber foundations by solid concrete. If reference be now made to the drawing, it will be clearly seen what an enormous amount of demolition and rebuilding will be necessitated by the Council's proposals, merely to render it possible to place in position the small amount of new concrete required under the piers. I wish particularly to emphasise that modern engineering methods admit of this concrete being placed in position under the piers with perfect safety, without disturbing a single stone of the existing structure, and it is certainly difficult to understand why some such method has not been proposed and adopted by the Council's advisers. From the point of view of cost the Council's proposals, as stated in the press, will entail an outlay of at least £1,000,000, that sum having already been earmarked for the purpose. By my proposals the cost would amount to only a fraction of that sum, and the work would be carried out in the least possible time. Apart from these engineering and financial considerations, there is the equally important one, from a national point of view, of preserving as far as possible untouched a structure which, as already stated, is recognised to be a masterpiece of arch bridge construction.

I now propose to deal as shortly as possible with the solution of the problem already stated, namely, the replacement of the existing defective foundations by solid concrete without interfering with the structure of the bridge itself. My scheme and drawing have been prepared on the assumption that the bridge was in no immediate danger, and as traffic would be continued during the nine months necessary for the construction of the temporary bridge, my suggestion is that if it is safe for traffic to pass over the bridge it is absolutely safe to underpin it.

Dealing in the first place with the problem on this assumption, the preliminary operation would be to drive enclosing sheet piling of special section entirely around the piers in the position shown on the drawing. The lower ends of the piling would be driven well into the clay some 2 ft. below the level at which it is proposed to put in the new concrete foundations, the upper ends being secured to the masonry of the piers by strong tiebolts at close intervals. The space between the sheet piling and the masonry above the footings and against the pier faces would then be filled with Stamshaw clay in bags bedded and well rammed in position so as to make a substantially airtight joint between the piling and the masonry, and by its weight to counteract the uplift due to the compressed air to be employed for the exclusion of the tidal waters during the progress of the excavation for the new foundations. An access shaft 6 ft. in diameter formed of airtight steel plating would then be fixed within a circular pit sunk in the masonry at the centre of the pier from a chamber formed under the roadway or alternatively in the cut water of the pier at one or both ends as may be required, the shaft being fitted at its upper end with an airlock for the ingress and egress of workmen engaged in the underpinning work and for dealing with materials required for same. Compressed air would then be applied to the shaft through piping carried along the bridge from a working site at one end.

The maximum air pressure required would be not more than about 15 lb. per sq. in. at high water and 6 lb. per sq. in. at low water, the actual pressure being regulated automatically in accordance with the level of the tide. Assuming that the work is carried out from the central shaft (as it would in such case be done much more cheaply and quickly than from an alternative position in the cut water), a short length of service gallery would be driven into the pier foundation under compressed air conditions and the work be started in that manner. The existing foundations, including all timber, loose stones, etc., would then be taken out in small sections one at a time, each section being filled in solidly with concrete and brickwork before the next section was commenced, the brickwork being pinned with slate wedging to the underside of the masonry. The foundation thus formed would bear directly upon the London blue clay, which from my personal knowledge of that material from tunnelling operations which I have carried out in that vicinity, is of the very best quality.

This description will be made more clear on reference to the plan of Pier No. 5, whereon are shown by numerals 1, 2, 3, etc., the sections as they would successively be dealt with from the central shaft, and numerals $1_A$, $2_A$, $3_A$, etc., if the work were executed alternatively from the shaft in the cut-water. During the operation of excavating the gravel bed, the compressed air would tend to escape into the river, but its passage would for all practical purposes be barred by the cut off formed by the steel sheet piling and by the clay filling between the upper end of same and the masonry of the pier. The small quantity of air that would escape through the joints of the piling would have the advantage of always maintaining the air in the working section in a condition of purity, much to the benefit of the men engaged.

In every process of underpinning the foundation is of course temporarily unsupported immediately under the area where the ground has been removed by the process of excavation, and it is to that extent weakened. It is consequently necessary so to arrange for the execution of the work that the area of each of the sections to be excavated may be as small as possible, and that the work be carried out with the greatest despatch. In the present case it is proposed to limit the size of the working section to the space between two rows of bearing piles, and half the width of the pier, *i.e.*, less than 3 per cent. of the total foundation area. The bearing piles would not be removed until the whole of the gravel and clay has been excavated in each section, and then they would be dealt with in pairs and cut off

below the level of the new concrete. It may here be noted that this type of foundation particularly lends itself to this mode of excavation, as few, if any, new props will be required as the excavation proceeds, and the poling boards which will temporarily be put in to support the sides of the section can very easily be threaded behind the existing bearing piles, which will automatically do duty for side trees.

The system which I have thus briefly described would be applied either simultaneously or successively, as may be decided, to any of the piers which may require underpinning, but in the case of Pier No. 4, owing to the large amount of subsidence that has already taken place, and to the fact that subsidence is probably continuing and may become serious if not arrested, the Council would be well advised immediately to erect centering of a very substantial character carried on cylinders and girders and not on timber staging, under each of the adjoining arches, so as to ensure the safety of the bridge and its availability for traffic.

Failing this course, it may be found necessary for the safety of the public to stop further traffic over the bridge, when opportunity should be taken to lighten the load on Pier No. 4 by removing the roadway metalling, paving, parapets, etc., as well as the spandrel backing to the arches. This centering should be designed to take a very considerable amount of load, with corresponding relief to the pier foundations. I would, however, like to make it quite clear that this particular centering has for its object the securing of arches Nos. 4 and 5 on each side of Pier No. 4 from failure, and is in no way necessary to make the underpinning possible, nor would such centering be required in the case of any other arches than those springing from Pier No. 4.

As I understand the problem, Pier No. 4 is the only one in the whole group which can be looked upon as being in a really weak condition, and so long as its subsidence does not continue beyond a certain point its underpinning would be perfectly safe and practicable. If, however, the subsidence rapidly increases, it may be necessary to adopt certain additional precautionary measures in the case of this particular pier before underpinning would be attempted.

By the adoption of the proposals outlined above the entire cost of a temporary bridge, the blocking of the river therewith, the pulling down and rebuilding of the existing structure with the consequent interference with navigation over the entire width of the river would be avoided, and in my view the Council should reconsider the whole question if only from the point of view of economy. If during the course of the next few months the condition of Pier No. 4 should be such as to require the stopping of the traffic over the bridge, the Council would be well advised, after securing the safety of the bridge by the erecting of the centering to arches Nos. 4 and 5 as above described, at once to proceed with the underpinning work, which I feel sure, in the hands of responsible contractors, could be completed within twelve months. There is also the further question of the reinstatement of the two arches deformed by the recent subsidence of Pier No. 4. This could quite easily be dealt with by reconstructing only one half of the bridge at a time and regulating the traffic over the other half while the centering is in position.

With regard to the widening of the bridge, I am not prepared to express an opinion, as it is not an engineering but essentially a traffic matter. I can, however, say that after the existing piers have been underpinned and the foundations made secure, the widening can be carried out with perfect safety and without endangering the old structure, by the employment of open-topped steel caissons with dredging wells, and a working chamber, each caisson being so arranged that compressed air can, if necessary, be applied when passing through the gravels and be kept on until the cutting edge is well below the top of the clay. The remainder of the sinking would then be executed in free air and the descent of the caisson aided by the construction of the permanent masonry work of the pier built within the protection of temporary steel plating attached to the upper end of the caisson.

During the past thirty years I have had considerable experience of underpinning works both above and below water level, notably in the case of a large railway viaduct founded on gravel, where about 1,500 ft. run of underpinning were put in successfully without in any way endangering or stopping the traffic of the passenger lines of railway above. I have further carried out a large amount of underground work within a stone's throw of Waterloo Bridge itself in connection with the system of tube railway works under Charing Cross Station and the Embankment, as well as under the river, the work having been for the most part executed under compressed air in the same gravel and clay formation as is met with under Waterloo Bridge. I can therefore speak from a wide experience and from personal knowledge of the question under consideration, and can confidently assure you that the underpinning of Waterloo Bridge by the method above proposed can be safely, economically, and expeditiously carried out. In support of my opinion, I would like to say in conclusion that I have thought well to submit my designs and proposals to three of the most responsible contractors in London experienced in this class of work, and after going into the matter fully they inform me that they see no difficulty in carrying out the work satisfactorily in accordance with my proposals.

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We give below extracts from the letters of various contractors to Mr. Dalrymple-Hay with regard to the underpinning of Waterloo Bridge:—

Messrs. The Foundation Company, Ltd., state they are prepared to undertake the work and are confident that it can be carried out successfully and economically. They emphasise the experience they have behind them in works of similar nature where compressed air at very much greater pressure than those now contemplated has been utilised.

Messrs. John Mowlem & Co., Ltd., write that they have inspected Mr. Dalrymple-Hay's drawing and consider that the method he proposes to adopt for the underpinning is quite practicable. They would be willing to undertake the work on the lines indicated.

Messrs. John Cochrane & Sons, Ltd., state they have carefully considered the plan shown them for the repair of the damaged pier, and are of opinion that the work as designed presents no unusual difficulties or dangers, and they would be very glad to submit a tender.

Messrs. Charles Brand & Son, in the course of their letter, mention they have carefully considered Mr. Dalrymple-Hay's proposals for the underpinning of the piers, and are quite satisfied the work can be carried out by the method proposed, and they would be prepared to tender for the work if invited to do so.

The following is an extract from the *Times* of March 3: " . . since his report was written Mr. Dalrymple-Hay has seen Mr. Humphries, and has had laid before him in confidence certain data as to the condition and history of the bridge. Mr. Dalrymple-Hay has since informed the Society that in view of that data, his opinion is in no way modified, but, in fact, strengthened."

## MEETINGS

Friday, *April* 3.

*Royal Institute of British Architects.*—Mr. L. Turner, on "Coloured Carving in Wood and Stone." At 9, Conduit-street, W. 1. 5 p.m.

Saturday, *April* 4.

*Building Surveyors' and Inspectors' Association.*—Quarterly General Meeting. At Corn Market Hotel, Liverpool. 2.30 p.m.

## WATERLOO AND CHARING CROSS BRIDGES

### A NEW PROPOSAL.

In a letter to the Press on the question of Thames bridges, Sir Reginald Blomfield, R.A., makes a suggestion for a new bridge between Waterloo and Charing Cross railway bridge, with a view to relieving Waterloo Bridge of some of its traffic so that it may be left intact. After expressing the opinion that on the ground of cost it will be impracticable to build a road bridge in the place of the existing railway bridge at Charing Cross within a reasonable time, Sir Reginald states that the necessary conditions of a new bridge and roadway in the neighbourhood of Charing Cross seem to be that at the south-eastern end the roadway must leave Waterloo-road at an easy angle, with plenty of room for crossing traffic, that it must cross the river at a high level, clear of the Southern Railway property, that it must avoid bringing cross traffic into the Strand, and that at the north-western end it must land from the higher level in a space wide enough to admit of easy turning. As cost has to be closely considered, compensation must be reduced to a minimum. To meet these conditions the following suggestion is made:—

Starting from the point at which Stamford-street and York-road intersect Waterloo-road at the south-eastern end, the roadway would pass between the Lion Brewery and the Shot Tower, rising by an easy ramp to a high level bridge, carried across the river and the Embankment. The roadway would continue in a straight line to the Strand, and cross the Strand by a bridge immediately to the west of Coutts Bank. Thence it would descend to a "place" at the intersection of Charing Cross-road and St. Martin's-lane, opposite the Cavell Memorial. From this centre traffic could go north-west and south-west, and Waterloo Bridge would be relieved of all traffic except from the east and north-east.

The advantages of this scheme are put as follows:—

(1) It relieves the new bridge of the cost of compensation to the Railway, and brings it within the range of practical politics.

(2) It will relieve Waterloo Bridge of a great part of the traffic and enable it to be preserved in its present form.

(3) It provides as direct a transit as is possible for long-range traffic.

(4) It involves a minimum of interference with important buildings; and

(5) It brings no cross traffic into the Strand.

In reply to this proposal, Mr. Rees Jeffreys, Secretary of the Roads Improvement Association, asks what would happen to the traffic having got it on the south side of the river. He says: "On the south bank there is a triangle formed by the roads connecting London Bridge and Westminster Bridge with the Elephant and Castle. Into that triangle five bridges already pour their daily stream of traffic. The City propose to direct a new stream of traffic into the triangle by building St. Paul's Bridge; the L.C.C. propose to double the stream of traffic passing over the present Waterloo Bridge by building a new one capable of accommodating six lines of traffic; and now Sir Reginald Blomfield puts forward a scheme to provide for another stream at Charing Cross. Having attracted and guided all this traffic into the South London triangle, how is it to be got away?"

### Gunnersbury Park.

Gunnersbury Park, an enclosure of nearly 200 acres, is, it is stated, practically certain to be acquired for the public. Representatives of the town councils of Ealing and Acton met recently at the Ealing Town Hall and carried the negotiations for the purchase to a stage at which it was possible to make a definite offer for the park to the Rothschild family. The price, we understand, is approximately a quarter of a million pounds.

# LONDON BRIDGES

In his second lecture* on London Bridges, given recently at University College, Professor A. E Richardson, F.R.I.B.A., gave the following particulars of some of the bridges in question:—

London Bridge.—Erected under the superintendence of George Rennie and Sir John Rennie from the designs of John Rennie the elder, the first pile of this bridge was driven on March 15, 1824; the foundation stone of the first pier was laid on June 15, 1825, and the bridge was opened on August 1, 1831. The bridge consisted of five semi-elliptical arches, with their respective piers and abutments. The centre arch was 152 ft. 6 in. span, with a versed sine of 29 ft. 6 in. above high-water-mark. The piers between the central arch and the second and fourth arches were 24 ft. thick. The first and fifth of the land arches were 130 ft. span each, with a versed sine of 24 ft. 6 in., the abutments on each side being 73 ft. thick. The upper portions of the piers formed square pilasters upon the face of the bridge; their lower portions were protected by advancing cutwaters, which were described by portions of circles meeting at an angle of 60 deg. As originally designed, the arches and piers were surmounted by a plain blocking course, but when it was decided to increase the footway the present balustrade carried on corbels was introduced and the bridge lost some of its effect. The bridge was 928 ft. long, and the total height of the road at the centre above the low-water line was 55 ft.

The whole of the exterior masonry of the bridge was in granite from Aberdeen, Haytor, and Peterhead. The masonry was well executed, but criticism has been levelled at the finishing of the voussoirs forming the arches. Apparently there was indecision regarding the method of placing the voussoirs. The filling in was of Bramley Fall, Derby and Whitby stone, mingled with some materials derived from the old bridge at an earlier date. As originally designed, the roadway was paved with deep and narrow granite sets.

At the time this magnificent work was undertaken little danger was feared from the removal of old London Bridge, which acted as a dam to the waters of the river. The removal of this dam had an appreciable effect on the piers of new London Bridge as well as those of old Blackfriars, Waterloo, and old Westminster.

The building of the bridge was left as a legacy to the son, John Rennie, afterwards Sir John Rennie, by his father, who had designed it but had left no working drawings, specifications, or estimates. It was first intended that the new bridge should occupy the site of the old one, which was to have been pulled down in the first instance and a temporary wooden one was to be built along it to accommodate traffic whilst the new bridge was building, the Corporation having decided to retain the old bridge intact while the new one was being erected. The old bridge stood on a hill, the foundations of the piers being from 28 to 30 ft. above the bottom of the river immediately above and below it. Thus it became necessary to secure the piers with large projecting starlings and to throw vast quantities of stones continually around them in order to prevent the old bridge from being carried away. The coffer-dams for the piers of the new bridge were elliptical in form, this shape being the best adapted for resisting the strong current in which they were placed; they consisted of two main rows of piles each 14 in. square, each pile being hoofed and shod with iron and driven 25 ft. into the bed of the river. On the outside of these two main rows of piles was a third row of the same dimensions and driven the same depth into the bed of the river at a distance of 6 ft. from the main rows. After the piles had been driven to their proper depth and properly secured, the joints between every pile were caulked with oakum, and the outside fronts were covered with melted pitch to render them watertight. The spaces between the three rows of piles were then filled with strong well-puddled clay. In addition to the aforementioned three rows of piles there was a fourth row on the inside driven down in the form of a parallelogram corresponding with the exact size of the foundation of the piers and to the same depth as the outer piles. The first pier coffer dam on the Southwark side was completed, the water pumped out, and the earth was excavated to the depth of 30 ft., going below low-water mark of spring tides. The piles were of Baltic firs, elms, and beech, 22 ft. long by 12 in., hoofed and shod with iron, and were then driven 20 ft. into the solid ground. The whole surface of the foundation was planked to form a platform for the masonry. Upon this platform the masonry was built, each course diminishing in length and width by a series of offsets 12 in. wide, until they reached the shaft of the piers, when it was carried up solid to the spanning of the arches. The whole of the exterior masonry was of the best whitish grey granite, and the interior stone was of the best hard Yorkshire grit stone from the quarries of Bramley Ford. The abutments were constructed upon piles and masonry of the same character as the piers.

Each centre was comprised of eight ribs framed upon the truss principle, resting upon a continued series of wedges. The mode of setting and fixing the ribs was the same as that adopted for Waterloo and Southwark Bridges. Rennie the elder had already investigated the probable effect on the upper reaches of the river on the removal of old London Bridge, which held the waters in a centrifugal state as far as Teddington Lock. He calculated that an increased quantity of tidal water would pass up and down twice each way during the twenty-four hours, scouring the bed of the river and eventually removing great quantities of mud. He further opined that the drainage of the Metropolis and the whole valley of the Thames would eventually be improved. Results had since found his theories to have been correct. The younger Rennie was not successful in getting his own scheme for the buildings on each side of the approaches to the bridge approved by the authorities. The Committee having rejected them referred the subject to Sir Robert Smirke, then one of the Crown architects. As Rennie said, "a more unworthy set of buildings was never designed." These included the Pearl Assurance office, lately removed to make room for Adelaide House.

Hungerford Bridge.—The approach of this bridge was through Hungerford Market, which was designed by Charles Fowler. It was constructed by Brunel in 1845 upon the suspension principle. The centre span, at the time of its erection, was the largest in the world, being 676 ft., whilst the total length of the bridge was 1,352 ft. The chains to which the suspending rods were fastened were double on each side of the bridge. The two piers which stood up from the river were of ornamental brickwork. The clear height of the bridge above high water in the centre was 32 ft. The bridge cost £100,000; it was intended for foot passengers only. When the present railway bridge was built the centre span was transferred to Clifton, near Bristol, where it now spans the waters of the Avon. The footway still remains rebuilt against the side of the existing railway bridge, and Charing Cross Station now occupies the site of Hungerford Market. The bridge which carries the Southern Railway across the Thames consists of nine spans, six of 154 ft. and three of 100 ft. It is supported by iron cylinders sunk into the bed of the river and by the piers and abutments of the old suspension bridge, the site of which it occupies. The superstructure of each of the 159 ft. spans consists of two main girders, to the outer side of which are suspended cross-girders for carrying the roadway platform. The cross-girders extend beyond the main-girder, and form a series of cantilevers on the water-side for supporting a footpath 7 ft. wide. The superstruction of the three 100 ft. spans is fan-shaped, and forms the connection of the bridge with the railway station.

New Bridge, Westminster.—This bridge is built chiefly of iron, and has lately given reason for mistrust. It was begun in 1855 by Page, and completed in 1862, the architecture of the bridge being designed by Sir Charles Barry. The bridge was constructed in two portions. The first half was erected on the western side of the original structure and opened for traffic, after which the demolition of the old bridge was proceeded with. The remaining half, occupying the exact site of the old bridge, was added on the eastern side of the new structure. The new bridge is 1,160 ft. long by 85 ft. wide. It consists of seven arches the centre one having a span of 120 ft., resting on granite piers. The parapet and ornamental portions were designed to accord with the adjacent Houses of Parliament. The roadway is 53 ft. wide, and the footways 15 ft. The road had originally grooves for the wheels of heavy vehicles. It cost £206,000.

Lambeth Bridge.—This was erected in 1862. It is constructed of iron on the suspension principle, and has three spans each of 280 ft. The design is graceful in line, and seen in connection with the Houses of Parliament makes a pleasant picture. The bridge was designed by P. W. Barker, at a cost of less than £50,000, and was opened in November, 1862. The structure is of a stiffened suspension type 828 ft. long, with two longitudinal box girders. The suspension cables, of which there are two pairs, each consist of seven twisted small cables. The bridge is divided into three spans, each 268 ft. wide, by piers carrying the towers, which support the suspension cables. These towers, of obelisk form, are supported on four iron cylinders each 12 ft. in diameter and 1¼ in. thick. This bridge has never been satisfactory owing to its method of construction; the twisted cables have corroded; the box girders are weak; and the whole of the masonry has corroded in an alarming way. In 1905 the bridge was again examined, and in 1910 it was closed to vehicular traffic. A new bridge from the designs of Sir Reginald Blomfield is in contemplation.

Albert Bridge.—This bridge was designed by Rowland Mason Ordish. It was constructed on the suspension principle, and cost £200,000. It was opened in September, 1873. The bridge was originally designed as a cantilever bridge, each half of the entire length being supported by sixteen straight bars, radiating from the tops of the piers, and the short ends of the girders secured by anchors in cast-iron anchor pits of a peculiar pattern. In addition to the main supporting bars, the side girders forming the parapets of the bridge were hung from vertical steel rods secured at their intersection with the main cantilever with pins from wire ropes, which, like the chain of a suspension bridge, were hung from the tops of the tower to the extremity of the two cantilevers. In 1884, the bridge was overhauled and strengthened under the direction of Sir J. Bazalgette.

Hammersmith Bridge.—The old Hammersmith Bridge was designed by William Tierney Clarke, who had assisted the elder Rennie. It was the first suspension bridge erected over the Thames in London, and was opened in 1827. The bridge was acquired by the Metropolitan Board of Works in 1880, and it was determined to rebuild it. The new bridge was designed in 1883 by Sir Joseph Bazalgette, and opened in 1887. The only parts of the original structure which were allowed to remain were the parts of the towers below the road, and the abutments. The old masonry towers were replaced by lighter ones of wrought iron and the chains were formed

* A report of the first lecture was given in our issue for March 27.

of steel. The rebuilding of this bridge is now under discussion.

OLD VAUXHALL BRIDGE.—Work on this bridge was begun in May, 1811, and finished in 1816. It was built from the design of James Walker, and cost £300,000. The iron superstructure consisted of nine equal arches, each 78 ft. in span, supported from eight iron-headed stone piers built on a foundation of wooden framing cased with stone. The length of the bridge totalled 800 ft., and it was the first iron bridge opened across the Thames. In 1895 the London County Council obtained powers to reconstruct the bridge at a total cost of £484,000. The design at first approved provided for a granite structure backed with concrete, but it was eventually decided to build the superstructure of steel.

NEW VAUXHALL BRIDGE.—The design of this bridge consists of a steel superstructure supported on granite abutments with four piers of the same material. The piers are constructed of granite only up to the springing line of the arches, the upper parts being built of steel framing, the ends of which are formed into ornamental frames or panels in which are placed bronze statues of heroic size designed by Mr. Pomeroy, R.A. The five spans each consist of 13 steel ribs, the superstructure being also of steel and carrying a concrete road-bed. The parapet is of a special design and height intended to improve the appearance of the bridge, the arches of necessity being somewhat flat. It was designed by the Engineer to the Council.

CHELSEA BRIDGE.—This bridge was schemed as far back as the year 1846, but it was not started until 1851, and opened in 1858. It is a light and attractive suspension structure. The towers carrying the chains are 97 ft., above high-water mark, and the bridge is 700 ft. long. In 1880 additional chains were added to enable the bridge to take greater loads. Further repairs to the deck took place in 1903. Thomas Page was the engineer.

VICTORIA BRIDGE.—This bridge carries the Southern Railway from Victoria. It is an iron bridge of four arches.

OLD BATTERSEA BRIDGE.—This bridge was begun in 1771 and completed in 1772, Holland being the architect-engineer. It was a picturesque structure of timber, the foundations consisting of wooden piles. There were originally 19 spans. The bridge was demolished in 1886, a temporary wooden bridge having been erected in 1885.

NEW BATTERSEA BRIDGE.—This bridge, which was finished in 1857, cost £88,000. It was designed by Page on the suspension principle. Built of iron, it rested on piers of English elm and concrete enclosed within iron casings. The two piers are each nearly 90 ft. in length by 20 ft. in width, with curved cutwaters. The roadway on the bridge was formed of two wrought iron longitudinal girders, each upwards of 1,400 ft., which extended the whole length of the bridge and were suspended by rods from chains. At each end of the bridge were lodges for the toll collections.

NEW BATTERSEA BRIDGE.—This was designed by Sir J. Bazalgette and opened in 1890. It spans the river in five segmental arches, each composed of seven cast-iron ribs. There is a defect in the design if not in the construction, arising from the coving of the actual curve of the arch, which has led to many accidents, the upper line of the cone being mistaken in foggy weather for the true line of the arch.

OLD PUTNEY BRIDGE.—This bridge was completed in 1729 from designs by Sir Jacob Ackworth. It can scarcely be described as an architectural design. Ackworth's bridge was 786 ft. in length, the width 29 ft., with a clear water-way of 700 ft., with 26 openings or locks. This bridge remained until 1870, when some alterations were carried out.

NEW PUTNEY BRIDGE.—This bridge was begun in 1882 from the designs of Sir Joseph Bazalgette at a total cost of £405,348. It is built entirely of granite, and has five spans. The river at this point is 700 ft. wide. The width of the centre span is 144 ft., of the two intermediate spans 129 ft., and of those adjoining the shore 112 ft.

HIGHGATE ARCHWAY.—In 1810 Parliament authorised this undertaking and incorporated the proprietors as the Highgate Hill Company. The work was begun, but in 1812 the tunnel, of which almost 130 yds. had been constructed, fell in. The plan was altered to a cutting, over which Hornsey-lane was carried by a bridge supported on three semi-circular arches surmounting a larger arch. This bridge, known as Highgate Archway, was designed by John Nash. In 1897 it was decided to enter into a contract for a new archway, which Sir Alexander Binnie designed and completed in 1903.

HOLBORN VIADUCT.—This was designed by Hayward and opened in 1869; the new Blackfriars Bridge was opened the same day. It is an iron bridge carried on polished granite columns, and an example of Victorian art.

LUDGATE HILL RAILWAY BRIDGE.—This is one of the worst eyesores in London. It lies flat across the street, only 18 ft. along the roadway. It has five girders of unwrought iron, each 60 ft. span, although Ludgate Hill is only 45 ft. wide; this is to allow for the future widening of the street. It is a combination of bad detail with huge medallions, armorial bearings, gas lamps, and standards.

WANDSWORTH BRIDGE.—This bridge was built in 1873 from designs by J. H. Tolme. It is constructed of iron, and is of lattice girder type. It is of five spans on coupled iron cylinder. Three central stream spans are each 133 ft. broad.

HYDE PARK.—The bridge across the Serpentine was built by Rennie in 1826.

REGENT'S PARK.—The three light suspension bridges here are principally of strong iron rods. In its course through London there are no less than twelve locks and about forty bridges in connection with the Regent's Canal. Morgan was the engineer, and in all probability Nash helped with the architectural features.

BOW BRIDGE.—The first bridge over the river Lea at this point was constructed at about the beginning of the twelfth century by Maud, wife of Henry I. This bridge was of stone, and from the circumstance that it was arched (quite an innovation at that date in this country) was called La Bowe, and the village hard by came to be known as "Stratford atte (at the) Bowe," now contracted to Bow. Through the Middle Ages the bridge was used and repaired until it received its last alteration in 1741, and so it continued until in 1835, when it was decided to rebuild the bridge. The new bridge was designed by Walker and Burges, and it was opened in 1839. In consisted of a single arch of Aberdeen granite 65 ft. 9 in. in span. The carriageway was 30 ft. 6 in. wide, and the two footways each 5 ft. In 1901 it was decided to replace this bridge with one of girder construction.

# ARCHITECTURAL SOCIETIES

## DEVON AND EXETER.

THE annual meeting of the Devon and Exeter Architectural Society, which is in alliance with the Royal Institute of British Architects, was held recently at the Rooms of the Society, 24, Southernhay West, Exeter.

The President, Mr. J. L. Fouracre (Plymouth) was in the chair, others present being Messrs. A. J. Pinn, T. A. Andrews, O. Ralling, L. F. Tonar, E. F. Hooper, R. M. Challice, E. Jenkin, John Bennett, W. J. M. Thomasson, James Jerman, A. H. Ough, E. L. R. Vining, A. Cunes, W. F. R. Ham, D. W. Cooper, C. C. Jackson, N. B. Irwin and J. Challice, Hon. Sec. (Exeter), Messrs. A. C. A. Norman, B. Priestley Shires, A. Southcombe Parker, F. A. Vercoe and P. O. G. Wakeham (Plymouth), Messrs. J. C. Beare and B. H. Palmer (Newton Abbot), Mr. J. C. Southcombe (Barnstaple), Mr. E. A. L. Martyn (Newquay).

The minutes of the preceding annual meeting were read, confirmed, and signed by the President. The annual report and balance sheet were presented and adopted unanimously. The report and balance sheet of the Plymouth Branch was also presented and adopted unanimously. General business followed, and the prizes were then awarded in connection with the measured drawing competition of the Society to Mr. F. S. Stilwell (Plymouth) who obtained first place, and Mr. P. O. G. Wakeham (Plymouth). The President, Mr. J. L. Fouracre, then delivered his address, at the close of which a vote of thanks for the services he had rendered the Society during his year of office was proposed by Mr. L. F. Tonar and carried with acclamation.

Mr. J. L. Fouracre, F.R.I.B.A., was re-elected President for the ensuing year, and the following officers and Council were elected to fill the vacancies of those retiring:—Vice-Presidents, Messrs. E. F. Hooper (Exeter) and H. Victor Prigg (Plymouth); members of council, Messrs. L. F. Tonar (Exeter), F. A. Vercoe (Plymouth), and R. M. Challice (Exeter); associate member of council, Mr. D. W. Cooper (Exeter); hon. treasurer, Mr. Samuel Dobell (Exeter); hon. auditor, Mr. L. F. Tonar (Exeter); hon. librarian, Mr. W. J. M. Thomasson (Exeter); hon. secretary, Mr. J. Challice (Exeter).

## SOUTH WALES INSTITUTE OF ARCHITECTS.

THE annual general meeting of the South Wales Institute of Architects was held recently at the Institute Rooms, Cardiff, when Mr. C. F. Ward, F.R.I.B.A., Borough Architect of Newport, Mon, was elected President for 1925–26.

Mr. Ward, in accepting office, referred to the indebtedness of the South Wales Institute of Architects to the retiring President, who, during his three years' term of office, had expended valuable time and had carried out exceptionally useful work when attending the meetings of the R.I.B.A. Council in London.

The retiring President, Mr. Percy Thomas, F.R.I.B.A., in the course of his remarks, referred to the greatly strengthened position of the South Wales Institute of recent years, owing largely to the fact that all the leading architects in the South Wales area were now enrolled as members. He also referred to the recent absorption of the Society of Architects by the Royal Institute of British Architects, and to the effect this would have in strengthening the profession throughout the country. In conclusion he pointed out the necessity for the continued interest of all members in the affairs of the Institute.

The Honorary Treasurer, Mr. H. Teather, F.R.I.B.A., in his report pointed out the strong financial position of the South Wales Institute, and referred to the proposed intentions of the Council to use the funds in hand for the assistance of the three branches of the Institute in South Wales, so that the work of the branches would be greatly facilitated.

The Council elected is as follows:—

President, Mr. C. F. Ward; vice-presidents, Messrs. Percy Thomas and C. S. Thomas; hon. treasurer, Mr. H. Teather; hon. auditor, Mr. E. H. Fawckner; hon. librarian, Mr. C. H. Kempthorne; hon. secretary, Mr. Ivor P. Jones.

Members.—Central Branch: Messrs. A. G. Edwards, W. S. Purchon, T. Alwyn Lloyd, J. Williamson, J. B. Wride, F. H. Heaven, G. H. Griffiths, R. H. Winder, J. A. Hallam. Western Branch: Messrs. J. Herbert Jones, H. C. Portsmouth, Edwin Smith, Sidney R. Crocker, G. R. H. Rogers, O. S. Portsmouth. Eastern Branch: Messrs. R. Fisher, H. Jones, W. Rosser, F. Swash.

Associates' Representatives.—Central Branch: Messrs. T. E. Llewellyn and R. E. M. Coombes. Western Branch: Mr. Geo. L. Crocker. Eastern Branch: Mr. J. E. Lenton.

# ARCHITECTS' & BUILDERS' INQUIRY BUREAU

*We are glad to give questions and answers but cannot accept responsibility for contributed replies, especially on legal matters.*

*May we appeal to our correspondents to submit their queries on paper of a size easily filed, and written as legibly as possible, or better still, in typewriting?*—ED.

### Septic Tank.

[REPLY TO "RESEARCH," MARCH 13.]

SIR,—This querist's problem seems to be: The drainage from six cottages passes through underground pipes to a septic tank, and thence, after treatment, into a cesspool. Recently the drainage from a w.c. and certain surface water has been added, and the whole is in constant need of cleansing, and the cesspool overflows and has become a nuisance. Further, it is stated that when the work was carried out, plans, &c., were not submitted to the local authority; that there are no records of it in existence, that the work is not in accordance with the by-laws in force in the district; but that, as a fact, it was inspected by the local authority during execution.

In order to reply to the questions put by "Research," the expressions "drain" and "sewer" must be considered. It is said that these expressions have given rise to more litigation than anything else in the sanitary Acts; and that "the problem is really an insoluble one." Outside the Metropolis, the drainage of buildings in combination with one another is not recognised. By Section 4 of the Public Health Act, 1875, "drain" means any drain of and used for the drainage of one building only, or premises within the same curtilage. This has been taken to mean that a drain is that which receives the drainage of one house. Further, it has been held that the word "building" may include semi-detached houses; and in defining the word curtilage, which is generally taken to be the fence or boundary enclosing the building, it has been said that it "includes the land adjoining a building which would pass with it so far as necessary and convenient for its use." If, however, the Public Health Amendment Act, 1890, is in force in the district under Section 19 it is provided that where two or more houses belonging to different owners are connected with a public sewer by a single private drain, such drain may, for certain purposes, be treated as a drain and not a sewer. This section in some measure relieved the local authority of the expenses incurred by them in executing certain works relating to complaints as to nuisances from drains; but the definition of "drain" in the 1875 Act still imposes on the authority the liability to repair the length of pipes from the point of junction of the drain from one building (or premises within its curtilage), with the drain from an adjoining building to the sewer.

Under Section 4 of the Public Health Act, 1875, "sewer" includes sewers and drains of every description, except drains to which the word "drain" interpreted as aforesaid applies; but it would appear that a line of pipes cannot be a sewer if it has no effective fall, *e.g.*, if it ends in a cesspool with no proper outlet. See Meader *v.* West Cowes L.B. (1892), 3 Ch. 18. The word "'sewer" does not comprise a cesspool for the purpose of retaining the sewage whether as a simple deposit or to be converted into manure or other useful purposes. See Sutton *v.* Norwich Corporation (1858), 27 L.J. Ch. 739.

Under Section 47 (3) of the Public Health Act, 1875, any person who allows the contents of any cesspool to overflow is liable to a penalty; and the local authority may recover from the occupier any expenses incurred in abating the nuisance. If, under Section 42 of the Act, the authority has undertaken the cleansing of the cesspools in the district, it would appear to be their duty to empty them, but not otherwise. Where the Public Health Act, 1907, is in force, under Section 46, the local authority may require a cesspool which is prejudicial to health or otherwise objectionable, to be filled up, removed or altered, for sanitary reasons.

In Pinnock *v.* Waterworth (1887), 51 J.P. 248, a builder drained a number of houses by one common pipe into a cesspool. The cesspool overflowed, and justices made an order on the owner of one of the houses to abate the nuisance. A Divisional Court reversed this decision, holding that the authority must deal with the matter. It was admitted the line of pipes was a sewer, and that being so, the court appeared to have held that the owners had no more responsibility for what was turned into it, or that the cesspool was part of the sewer; but see Sutton *v.* Norwich Corporation and Meader *v.* West Cowes L.B. (ante), where it was held "sewer" did not include a cesspool. Also in some cases it has been held that the pipe or conduit leading to the cesspool is not a sewer, also that a catch pit or a manhole may be part of a sewer; but in Buttons *v.* Tottenham U.D.C (1898), 78 L.T. 470, the case of Pinnock *v.* Waterworth (ante), was not followed. In Buttons *v.* Tottenham U.D.C., an owner who had constructed a series of cesspools for the drainage of his houses made a conduit, which conveyed the overflow to a larger cesspool; and was summoned for constructing these cesspools with outlets to a sewer, *viz.*, the conduit and the larger cesspool. It was held that he had not constructed a sewer.

It will be seen that the expressions "drain" and "sewer" are bristling with difficulties, and that every case is a question of fact for the Court to decide, and on its merits.

On a consideration of the foregoing and of the facts as stated in the query, "Research" will gather that the replies to his questions would appear to be as follows:—

(1) Since the cesspool is not a "sewer," and the nuisance is caused jointly by several persons, then those persons causing the nuisance are responsible, and the notice as to any nuisance due to the overflow may be served by the local authority on any one or all of them. If, however, the local authority has undertaken the cleansing of the cesspools, it is their duty to empty it.

(2) If it could be held that the line of pipes connecting the houses to the cesspool is a sewer under Pinnock *v.* Waterworth (ante), then the local authority is responsible for the upkeep, &c.; but in view of Buttons *v.* Tottenham (ante), it would appear the liability is shared jointly by the persons using the line of pipes from the six cottages.

(3) Since the cesspool is not a "sewer," see Sutton *v.* Norwich and Meader *v.* West Cowes (ante), the local authority cannot be compelled to increase the capacity of the cesspool, &c., but the several persons occupying the cottages and draining into the cesspool, can see the reference to Section 46 of the Public Health Act, 1907 (ante).

The question of any neglect of the local authority, in the first instance, does not arise; and in any case there is no remedy against the local authority.

"TANK."

### Bond in Brickwork.

SIR,—I should be glad to hear from any of your correspondents of a brick bond other than of the generally accepted type that will combine speedy laying with strength. Bricklaying is a slow process these days, and I feel there is much for us yet to learn in the way of better methods.

"PROGRESS."

### Norwegian Granite.

SIR,—Can you inform me of any building in London in which has been used the Standard Grey Granite of Norway? This material has been considered for a new building in London and we are anxious to see how it stands under similar circumstances.

"LONDONER."

### Mortar for Masonry.

SIR,—I should like to know how much mortar in proportion to the bulk of ashlar work should be allowed for in masonry building for estimating purposes.

"BUILDER."

# ARCHITECTS ENTERTAINED BY CLIENTS

AN interesting function took place at the Midland Adelphi Hotel, Liverpool, recently, when the partners in Messrs. W. H. Smith & Son entertained at dinner a number of architects from various parts of the country. Forty-two architects were present. Mr. C. H. St. John Hornby, F.S.A., senior partner in Messrs. W. H. Smith & Son, presided, and he was supported by Mr. A. D. Power, another partner, and Mr. F. C. Bayliss, F.R.I.B.A., the architect to the firm and head of its Estate Department.

Mr. C. H. St. John Hornby, F.S.A., in proposing "The Architectural Profession," said in the last twenty or thirty years there had been an enormous improvement in the general appearance of our large cities. There was an improved public opinion in architectural matters, and civic authorities were much more alive to their duties. He had very great hopes in the course of the next fifty years that it would be possible to conduct a foreigner through their cities with a feeling of just pride, instead of that sort of apologetic feeling were they on a similar errand to-day.

Professor C. H. Reilly, F.R.I.B.A., said one of the most hopeful things about architecture was that the layman was at last grasping its importance. The happiness they got in designing architecture was a happiness which brought its own reward. At the moment they were trying to close the profession and register it, and make themselves into "chartered architects." They were doing that with the best intentions, because at the moment they felt that any uneducated, thoughtless person could call himself an architect. The question was, how could they ensure they did not shut the door against good men?

Mr. C. T. Marshall, F.R.I.B.A., proposing the toast of "The Estate Department of W. H. Smith & Son," said the architectural profession owed a great debt to the enterprise and well-directed development of the great commercial houses in this country, enabling business needs to be satisfied whilst subscribing to the ennobling influence of their art on the general community.

Mr. Bayless, in responding, said all great bodies must have a oneness of aim, and without it, in their particular sphere of activity, it would result in the mere bringing together of men and materials, and a builder's yard was no great thing of beauty. What they had to weld together was something far greater, the more progressive ideas of man, which in themselves initiated further growth. All great buildings started as an idea and, according to the vision of the architect, who might either bring in those ideas or leave them out, it became correspondingly a great or a poor achievement of its kind, whatever its size might be. Those ideas required searching for and correlating before there could be any fusion. They had such a great fusion to-day in the R.I.B.A., a joining together in one common interest, forming a tower of strength from which it could be confidently predicted many peaceful but none the less powerful attacks would be made to put an end to many things which it was not in the common interests of the community to continue, and one was "jerry" building, which, with all its so-called advantages, had left a great legacy of houses not worth living in and was providing them still to-day. The study of what might be termed the welfare side of any commercial building worthy of the name had become in the last generation an integral part of its planning. That had only been brought about by a great and thoughtful unity between architecture and commerce, the one side to encourage or provide, the other to encourage and pay, the latter forming a most essential part of the contract.

Archdeacon Howson proposed the toast of "The Chairman," to which Mr. Hornby replied.

# THE WEEK IN PARLIAMENT

Westminster, *Wednesday.*

### Rent Restrictions.

On the resumption of the adjourned debate on the second reading of the Rent and Mortgage Interest (Restrictions Continuation) Bill, the Labour amendment to reject the measure was negatived by 231 votes to 131, and the Bill was read a second time.

Sir D. Hogg, the Attorney-General, emphasised the fact that the Government intended to deal most severely with all who infringed the provisions of the Rent Acts, and mentioned that he had been in consultation with the Director of Public Prosecutions on the subject. The Bill, he said, was not intended to cure the housing question; it was continuing an admittedly unsatisfactory course of legislation until by other means the housing shortage was overcome. The Government had, by every means in their power, to stimulate the existing means of house building, and to develop other methods to supplement those already existing. They had to see to it that the whole resources of the country were brought into dealing with the matter in a spirit of goodwill. He hoped and believed that the efforts of the Government were going increasingly to overtake the shortage.

### Consolidation Bills.

The Housing Bill (which consolidates the enactments relating to the housing of the working classes in England and Wales), the Housing (Scotland) Bill (which consolidates the enactments relating to the housing of the working classes in Scotland), the Town-Planning Bill (which consolidates the enactments relating to town planning in England and Wales), and the Town-Planning (Scotland) Bill (which consolidates the enactments relating to town planning in Scotland) have passed through all their stages in the House of Lords, and have been read a first time in the House of Commons.

### Steel Houses.

Mr. N. Chamberlain informed Mr. Day that many local authorities expressed their willingness to take part in the experiment for the erection of steel demonstration houses of the types chosen, but as the number of such houses was limited to 85 pairs, it was only possible to invite selected local authorities. Of the local authorities invited, only four did not wish to take part in the experiment, but this did not imply hostility to steel houses, as one of those same authorities was now erecting 100 steel houses. It was too early yet to make any estimate of the number of steel houses which would be erected. The number of houses completed by local authorities up to March 1 under the Housing Acts of 1923 and 1924 was 19,230.

Replying to Mr. Windsor, Mr. N. Chamberlain said that arrangements were being made for the erection of Weir houses by a number of local authorities for demonstration purposes. Apart from these he had not yet received any applications from local authorities for the erection of Weir houses, but he understood that some authorities were at present considering the matter.

Sir Walter de Frece asked the Minister if, in connection with the erection of metal houses, due consideration had been given to the use of iron as compared with steel; was he aware that if the ⅛ in. sheets which were being used were made of iron they would last three to four times longer than steel; that the additional cost of using such iron sheets would not be more than about 1 per cent.; and that the life of a house built of such sheets would be much extended and the cost of maintenance considerably reduced.

Mr. N. Chamberlain said that the makers of steel houses had considered very carefully the relative merits of steel and wrought iron sheets for their purpose; if a practical proposal for the use of wrought-iron were submitted it would be carefully considered by the Committee on New Methods of Construction.

Mr. W. C. Robinson asked what was the present cost of a Weir house of the non-parlour type with three bedrooms, and the average cost of a similar house built of brick.

Mr. N. Chamberlain said he was not aware that any three-bedroomed Weir houses had been erected in England and Wales, and he was not, therefore, in a position to give the information asked for. The average cost of non-parlour houses in contracts let by local authorities during the month of February was £439.

Mr. N. Chamberlain informed Mr. Montague that in connection with future returns as to progress of houses under the Housing Acts, he was asking local authorities to give him information in respect of houses built of concrete and of other special methods of construction in addition to those built by ordinary methods.

### Houses Built.

Mr. N. Chamberlain informed Mr. Day that the number of houses completed under the Housing Acts during the twelve months ended March 1, 1925, and the number under construction at the end of this period were:—

| | *Local Authority Schemes.* | *Private Enterprise Schemes.* |
|---|---|---|
| Completed ..... | 19,544 .. | 43,223 |
| Under construction | 24,488 .. | 30,098 |

The latest particulars available in regard to houses erected by private enterprise were for the twelve months ended September 30, 1924. During that period 73,032 houses were completed and on October 1, 37,218 were under construction.

### Protection of Buildings.

Sir Wilfrid Sugden asked the Minister of Transport if he was prepared to call a conference of experts for the purpose of considering the practical utilisation of compound rubber-paving on certain roads and crossings in order to obviate the damage to valuable modern, as well as ancient, buildings caused by heavy swift-moving commercial vehicles passing along such roads and crossings now built with either concrete or granite facings.

Colonel Moore-Brabazon (Parliamentary Secretary to the Ministry) replied that as the staff of the Ministry kept under constant observation the experiments that were being made in the utilisation of rubber as a paving material, it was not considered necessary to call the suggested conference.

### Light Castings.

Mr. N. Chamberlain informed Mr. R. Morrison that he was not yet in a position to say when the Report on the recent increase of prices by the National Light Castings Association would be ready, but he hoped soon. The report would be made public.

### Direct Labour.

Mr. N. Chamberlain informed Mr. Couper that up to March 1, 1925, 53 local authhorities in England and Wales had commenced work by direct labour on schemes approved under the Housing Acts of 1923 and 1924. The total number of houses in these schemes was 4,531. The total number of houses included in contracts let by local authorities on March 1 was 57,612.

### Apprentices and Journeymen.

Sir W. de Frece asked the Minister whether, as the latest regulations drafted in connection with the housing subsidies provided that any contractor participating in these must employ one apprentice to three journeymen, he would, in view of the decay of apprenticeship, give instruction for these regulations to be put into operation without delay.

Mr. N. Chamberlain said that the regulations referred to were already in operation. It was now a condition of approval of housing schemes of local authorities in localities where local building industry committees were in existence that contracts for the erection of houses should contain provisions for the employment by the contractor of apprentices in the ratio of not less than one apprentice for every three building trade craftsmen employed by him on or in connection with the housing contract.

### Built-up Areas.

Mr. N. Chamberlain informed Mr. MacLaren that he hoped to introduce legislation dealing with the town planning of built-up areas when a favourable opportunity occurred. The existing Acts already contained a provision as to betterment and he would consider whether any further provision was required.

### Public Buildings.

Mr. N. Chamberlain informed Mr. Thurtle that in order to permit of the maximum amount of building work being undertaken during the present shortage of bricklayers he was encouraging local authorities to adopt alternative methods of construction for public buildings wherever these could conveniently be substituted for brick construction.

### Additions to Cottages.

Mr. Shepperson asked if any financial aid was available to owners of cottages who proposed to improve them by the addition of an extra bedroom or other room.

Sir K. Wood said that no subsidy was available for this purpose, but Section 22 of the Housing, Town Planning, &c., Act, 1919, and Section 5 of the Housing, &c., Act, 1923, authorised local authorities to advance money for the improvement of existing housing accommodation.

### A Maidstone Case.

Mr. Dalton asked the Minister whether he was aware that a local builder in Maidstone had erected certain houses at a cost of £600 per house, including £100 subsidy; that the purchaser of these houses had obtained a mortgage from the borough council of 90 per cent. of the purchase price, and had immediately resold them for £750, thus making a profit of £150 per house; and whether he proposed to introduce legislation to prevent financial operations of this kind.

Mr. N. Chamberlain said he was aware of the case referred to. The Housing Act, 1923, already provided that the grant of assistance by a local authority must be made subject to such conditions as the local authority might, with the approval of the Minister of Health, impose, and the local authority might, before giving assistance, require security to be given that the conditions would be observed. The Maidstone Town Council had, with his approval, adopted a condition, as regarded future cases, limiting for a period of five years the price at which subsidised houses might be sold.

### The Bank Rate.

Mr. N. Chamberlain informed Mr. Dalton that he did not apprehend that the rate of interest on long-period loans raised by local authorities for capital works would be in any way affected by the recent increase in the bank rate. Any increase in the rate on temporary borrowings would be largely offset by higher interest earnings on credit balances; and in any case the net effect on the total interest payments by local authorities would be so slight as to be negligible.

### Public Utility Societies.

Sir K. Wood informed Mr. Hore-Belisha that 4,545 houses were built by Public Utility Societies with State assistance under the Housing Act of 1919, and other such societies were receiving assistance from the local authorities or from the Ministry of Health under the Act of 1923. Valuable work had been done by these societies.

### Devonshire House Site.

Lieutenant-Colonel Mason asked the Minister of Transport whether, in view of the largely-increased traffic congestion involved in the rebuilding of the Devonshire House site, he would take steps to construct a tunnel from Berkeley-square to the Green Park in order to relieve the congestion at Berkeley-street, Dover-street, and Albemarle-street.

Colonel Ashley said that the matter had been, and still was, under consideration, but he would prefer not to make any statement on the subject at present.

# THE BUILDING TRADE

## ARBITRATION IN BUILDING DISPUTES

By W. T. CRESWELL,
Lic.R.I.B.A.; Assoc. (late Fellow) Surveyors' Institution; F.R.San.Inst.; Barrister-at-Law.

### IX.—STATING A CASE.

In order to obtain an opinion or decision upon any point of law or other difficulty that arises during the reference under Section 19 of the Arbitration Act, 1889, any referee, arbitrator, or umpire may at any stage of the proceedings under a reference, and shall, if so directed by the Court or a judge, state in the form of a special case, for the opinion of the Court, any question of law arising in the course of the reference.

#### Giving the Facts for the Opinion of the Court.

It is for the arbitrator to give the facts upon which the Court is to decide a point of law. The Court will not decide how these facts are to be ascertained. In North and South-Western Junction Railway Co. *v.* Assessment Committee of the Brentford Union (1888), 13 A.C. 592, Lord Halsbury, L.C., said, "The Courts have, from time to time, given decisions as to what are and what are not proper considerations in arriving at a conclusion on that subject when the facts are found before them. But the case as stated in each of the alternative propositions, suggests to your Lordships for decision questions of fact, and even suggests the question which of two alternative methods is the best for arriving at the conclusion of fact. My Lords, no Court has ever given directions in such a case."

#### Employment of Legal Assistance by the Arbitrator.

The arbitrator should employ legal assistance in the framing of a case, especially if the parties are not represented by solicitors or counsel, so that the statement of facts may be clear and complete for the Court to give an authoritative opinion on the points of law raised.

#### Stating a Case a Means of Appealing.

As a means of appealing against the decision of the arbitrator on any point arising during the reference, either of the parties may require the arbitrator to state a case. The party so requiring should make his request to the arbitrator and himself formulate the point which has arisen in the course of the reference on which he wishes the decision of the Court. The application can be made at any stage of the proceedings, and must be made before they are closed by a completed award. See Tabernacle Permanent Building Society *v.* Knight (1892) A.C. 298.

#### Refusal on the Part of the Arbitrator to State a Case.

If the arbitrator refuses to state a case, the party requiring it should request the arbitrator to adjourn the hearing (unless there are other matters that can be dealt with in the meantime), so that an application may be made to the Court for an order directing the arbitrator to state a case. Refusal on the part of the arbitrator to adjourn may be considered as misconduct on his part; and the award may be set aside, or remitted to him, with directions from the court to state a case. The arbitrator is justified, however, in refusing an application that has been made with obvious intentions of delaying the proceedings, and the Court will uphold his decision. See in *re* Palmer & Co. and Hosken & Co. (1898) 1 Q.B. 131.

In *re* Fischel and Mann (1919), 2 K.B. 431, it was held that it amounts to misconduct, under Section 11 of the Act, for an arbitrator to refuse to state a case under Section 19 of the Act, (when he has received a *bona fide* request on reasonable grounds to do so), and to delay his award until an application to the Court could be made for an order of the Court directing him to state a case.

#### Not Necessary that a Decision Shall be First Given by the Arbitrator.

It is not necessary that a decision on any point must be first given by the arbitrator before he is requested to state a case. The application can be made directly the point arises.

In *re* Spillers & Baker, Ltd. and Leetham & Sons (1897), 1 Q.B. 312, it was held that the Court has jurisdiction, under section 19 of the Act, to order an arbitrator to state a special case for the opinion of the Court upon a question of law arising in the course of the reference, although the arbitrator has not indicated what his view of the law will be.

#### When it is too Late to Make an Application.

After an award has been given it is too late to make an application for a case to be stated. In *re* Montgomery, Jones & Co. and Liebenthal (1898), 78 L.T. 406, Smith, L.J., said, "I for my part have always understood the general rule to be that parties took their arbitrators for better or for worse, both as to decisions of fact and decisions of law."

#### When a Case will be Ordered.

The fact of there being a question of law to be decided is not sufficient ground for a case to be ordered, unless there is some evidence that the arbitrators are going beyond their jurisdiction, or are about to act contrary to the law. See in *re* Gray, Laurier & Co. and Bousted & Co. (1892), 8 T.L.R. 703. In Tabernacle Permanent Building Society *v.* Knight (ante), Lord Halsbury L.C., said, "The policy of section 19 of the Act is very manifest. During the progress of an arbitration it may be seen that the arbitrator has mistaken the law and is about to act upon his error, and the power of putting him right used to consist in the right of either party to revoke the submission to arbitrator. That power has been greatly controlled by legislation, and now it may be extremely difficult for a party to make such a case to a Court as will induce them to make an order giving leave to revoke unless a case is stated."

Where there was a difference between an urban authority and a county council, and under the Local Government Act, 1888, it was referred to the arbitrator of the Local Government Board, the Court has jurisdiction to order the Local Government Board to state, in the form of a special case, for the opinion of the Court, a question of law arising in the reference. See in *re* Kent County Council and Sandgate Local Board (1895), 64 L.J. Q.B. 502.

In *re* Gough and Liverpool Corporation (1890), 6 T.L.R. 453, an important question arose in an arbitration as to the principle on which compensation should be assessed for premises ordered to be pulled down as being unfit for habitation. It was held that a case should be stated by the arbitrator for the opinion of the Court.

The Court will not remit an award, on the ground that the arbitrator has not stated a case, when he has not been asked to do so. In London Dock Co. *v.* Shadwell Parish (1862), 7 L.T. 38 there was a submission which enabled either party to call upon the umpire to state a case. They failed to do so, and the umpire made his award, setting forth the principle upon which he acted. On an application to the Court to set aside the award, on the ground that the principle was bad in law, Cockburn, C.J., said, "You allow the opportunity to go by and take your chance, and then come here putting all the parties to great expense. It cannot be permitted."

#### Distinction Between Section 19 and Section 7 of the Act.

There is a distinction between the powers conferred by Section 19 of the Act (ante) and Section 7. The last provides that "the arbitrators or umpire, acting under a submission, shall, unless the submission expresses a contrary intention, have power, *inter alia*, to state an award as to the whole or part thereof in the form of a special case for the opinion of the Court. Now, whilst Section 19 gives the power to the arbitrator to state a case for the opinion of the Court, for his own guidance, on any point of law arising during the hearing, so that the arbitrator and the parties to the submission may have the benefit of that opinion, Section 7 gives him power to make the award itself dependent upon the opinion of the Court. He can embody alternative findings in the award, according to the different points raised, which may enable the Court to at once enter judgment without further reference to the arbitrator.

Much depends on the point of law raised, and the whole circumstances of the case, as to which section the arbitrator should select for the purpose of stating the case. If the question concerns the whole reference and the powers and jurisdiction of the arbitrator, Section 19 is applicable, and a case may be stated at once, and the reference adjourned pending a decision of the Court thereon. If, however, the point is one that can be reserved and dealt with by alternative awards, or the award can be so framed that the Court can determine the rights of the parties therefrom, then Section 7 is applicable.

#### Right of Appeal.

There is no appeal from the decision of the Court on a special statement of a case under Section 19 of the Act; but the decision may be reviewed, both by the Court of Appeal and the House of Lords, when such decision is embodied in the award of the arbitrator, and the award is subsequently questioned, on the ground that it is, on the face of it, erroneous in law. In British Westinghouse Electric Co. *v.* Underground Electric Railway Co. (1912), A.C. 673, the arbitrator, in making his award, recited therein the opinion of the Divisional Court that had been previously obtained. The unsuccessful party moved to set aside the award, on the ground that it contained an error in law on the face of it. It was held that though the judgment of the Divisional Court on the special case stated could not be appealed against, the opinion of that Court, when recited in the award, was an error on the face of it, and the award was remitted to the arbitrator.

#### Costs of Stating a Case.

By Section 20 of the Act any order made under the Act may be made on such terms as to costs, or otherwise, as the Court thinks just.

Except, however, in so far as there may be power under the section to impose terms as to costs, on making an order for the statement of a special case, the Court has no power to make an order as to the costs of a special case under the section.

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### Frome Building Strike.

The builders' strike in the Frome district was settled recently after lasting for a period of just over a month. The dispute originated in the demand of the operatives for a penny per hour increase; and has been settled on terms which give masons, carpenters, plumbers and plasterers an extra half-penny, bringing their wages up to 1s. 4d. per hour, another half-penny increase to come into force after July 31. Painters will receive 1s. 3½d. per hour, and labourers 1s. 0½d., being in each case an increase of a half-penny an hour.

### Change of Address.

Mr. Marcel Porn (sole concessionaire for the United Kingdom and Ireland for Stigler Lifts) has removed from 21, Mincing-lane, E.C.3, to 72–78, Fleet-street.

# SUPERVISION OF MODERN BUILDING

MR. T. P. BENNETT recently lectured on this subject before the Incorporated Clerks of Works Association at the Northern Polytechnic Institute. In the course of his remarks the lecturer, after a preliminary introduction defining the difference between the supervision of modern buildings and those of mediæval times, said the supervisor of the modern building stood in a vastly different position to that of his predecessors, so far as they knew, of all ages and of all generations. There had never previously been a time when tradition was of so little value to the builder, and when science and personal brilliance meant so much. This process of change was even more strangely rapid than most of them imagined. Gothic vaulting system required 400 years or more for its development. Skeleton steel construction and reinforced concrete, which represented quite as great or a greater development in building, required from 25 to 30 years at most. So short a time ago as 1890 most of the mechanical equipment of modern buildings was non-existent, and it fell, therefore, to the lot of those of them who were bound by their professions to accept the responsibility for the safe erection of structures of importance to replace this very safe and comfortable guide of tradition by pure sophistry.

In commencing at the foundations the first point that needed consideration was the fact that the modern high building aggregates loads, the intensity of which was unknown in previous years, in addition to which the depth of the excavation of many modern buildings brought forward additional problems connected with the temporary support of the excavated ground, and possibly difficulties of water and other matters which were not previously met with in so serious a form. The foundation problem in London was frequently involved with questions of shoring on a big scale, in many cases necessitating the safeguarding of existing buildings of considerable height and completely occupied. It was probable that they had yet to realise the full effects of vibration caused by excessive road traffic and underground trains travelling at high speeds. In the first instance, therefore, the engineer or the architect was called upon to design details of construction which would withstand these forces, but the conditions of modern work necessarily left a large responsibility with the man who was in charge of the actual execution of the work. It was obvious that this method of building, namely, the concentration of skilled work in a few hands, the employment of a large amount of unskilled work, and the use of mechanical appliances, threw a far and infinitely greater responsibility upon the supervisor of the modern building than the guild system of mediæval times to which he had already referred. To the engineer in charge, the foreman, or the clerk of works, fell the responsibility for evolving a real system or organisation which made certain that the elaborate drawings necessarily provided for this class of work were adequately and satisfactorily carried out. From the commencement, therefore, the modern building supervisor must be capable of a measure of organisation, scientifically understood, which was absent from any previous generation.

He would further point out the importance of materials of construction. In previous times the design of buildings provided a margin of safety over the greatest stress of the materials employed, which allowed a very large amount of latitude, and which did not necessitate accurate and continuous testing to make sure that the calculated stresses were provided for in the executed work. The next quality of the supervisor, therefore, was the development of a substantial amount of scientific knowledge and ability; the type of ability which, having mastered the principles of statics and mechanics, and having an intimate knowledge of the behaviour of materials under stress, was able to carry out mechanical tests, or alternatively clearly to appreciate scientifically worded reports of tests carried out in properly equipped testing stations.

Proceeding from the foundation work, they arrived at the superstructure. It seemed beyond question that the present shortage of skilled labour would be compensated for in some measure at least by the provision of labour-saving appliances. It was further evident that the increase in the height, and increase in the depth of the basement of buildings necessitated the use of mechanical handling appliances. These two factors were bringing into increasing prominence such aids to building as the steam navvy, the concrete mixer, the concrete hoist, the concrete breaker, the derrick crane and the mast crane. They were periodically disturbed by records of crane accidents, some at least of which would possibly have been avoidable if those in charge had possessed greater mechanical knowledge, and although the fixing and installation of these machines was often carried out by the firms which supplied them, the clerk of works was still responsible for protecting his client from any untoward incident which might delay completion of the building and might possibly cause annoyance and litigation.

Proceeding with the building, it was discovered that quite an extraordinary number of new materials were introduced. These new materials became yearly more numerous. He called to mind readily the introduction and use of asbestos cement sheets, compo boards of various kinds, a vast range of flooring materials divided into groups, each typical of a particular substance. There was a group of flooring based upon the use of coloured cement; there were other floors in which the basic material was rubber, still others which employed cork. Each of all these materials necessitated knowledge of the particular methods of laying which would secure the best results. Wall materials had in recent years shown similar diversity. There were a number of hard plasters on the market, tiles, marble, glass, mosaics, as well as sheeting materials which were capable of being used for brickwork or concrete, or which alternatively were employed as slabs in supporting their own weight. In the realm of paint, the number of preparations which were sold under proprietary names was now legion. It was possible that the building supervisor who had a real expert knowledge of any considerable number of these articles would find that his knowledge was invaluable to those who must decide to use one or the other. In any case, it was safe to say that the adequate control of this work and the proper use of these materials necessitated the possession of a substantial amount of chemical and physical knowledge, and he was certain that before long every one who was in charge of a building will be forced somehow or other to obtain knowledge of this kind. So far, the methods by which this knowledge could be acquired were relatively restricted, but undoubtedly they would be very largely extended in the near future.

With regard to the third sub-division of his paper, namely, a summary of the knowledge which a modern building supervisor must possess, it would be accepted without question that it was of the utmost importance that the supervisor of a modern building must possess considerable organising ability both in connection with the lay out and the general conduct of the work, and in connection with the information and records which must necessarily be kept to ensure accurate and economical working and satisfactory adjustment at the end of the contract. This organising ability was, in the first place, a gift, and those who were without such a gift would probably never attain to a position of any importance in the practical execution of work. Apart from that, organisation could only be developed by experience, and if it could in any measure be taught there were at present few if any teachers. No doubt systems would be developed in common with the general trend of modern ideas in which every effort was made to formulate abstract subjects, and they should have works organisation laid down in some form which would eliminate a great deal of the initial drudgery and many of the initial mistakes of building supervisors. In his own Institute they had made some efforts to give special lectures dealing with details of building organisation, and had perhaps attained a certain measure of success although they had not proceeded as far as he would like.

The next important field of knowledge was that embraced by building construction, under which general heading he included steel construction and the study of reinforced concrete. The next broad group of subjects upon which knowledge must be obtained was that relating to the materials of construction, and since in these days materials were constantly changing and new materials were being produced, it was becoming almost impossible to obtain a comprehensive idea of their behaviour by observation, and the study of materials now involved a special kind of chemical and physical knowledge. The fourth great group of subjects with which the supervisor must be conversant was that which might be summarily described under the heading of the mechanical equipment of buildings. This group was very comprehensive, the knowledge demanded was very wide, possibilities of mistakes were very great, and the results of bad workmanship or of bad setting out were immediately apparent, and usually calls forth very severe comment on the part of the client and users of the building.

Since he had outlined so vast a field of knowledge, so enormous an amount of detail, it might be rightly asked whether this amount of knowledge was possible in any one man, or if a sufficient amount of it could be obtained to enable that man to discharge his duties with reasonable efficiency. He accepted the position that he was providing a standard which seemed almost unobtainable, yet there could be no question that a serious effort must be made to obtain it. The training of a general foreman or a clerk of works was at one time sufficient if, starting life as a craftsman, he progressed by regular if somewhat slow stages to the position of a master craftsman, a sectional foreman and possibly a clerk of works, and in that progress he would, if he were a capable man, automatically secure the whole of the knowledge necessary for the efficient discharge of his duties. The only additional qualification necessary would be the outstanding quality of organisation, to which he had previously referred; but he must unhesitatingly say that such progression alone would not, in modern conditions, produce a first-class supervisor of buildings, because technical knowledge under all the various headings he had enumerated could not possibly come within the purview of any individual craftsman or sectional foreman, and only at the commencement, when increasing responsibility and confidence had resulted in an appointment of first-class importance, would their building supervisor come into contact with many of the problems enumerated. There were, of course, public lectures to various societies, such as the one he was attending to-night, where certain broad principles were enumerated and where specialists in various sections of the work were able to give their views, but they must all have appreciated the fact that it was one thing to listen to statements; quite another to be able to apply the knowledge which lie behind the information received. They were, therefore, driven back to the evening classes of the great schools of building, such as that at Brixton and the Northern Polytechnic, and he himself had made special efforts to provide advanced classes definitely aiming at the provision of the information required by men in responsible positions.

## Obituary.

**The death took place recently of Mr. F. Stuart Sage, grandson of the founder of Messrs. Fred. Sage & Co., Ltd. The funeral took place at Thames Ditton Church, on March 31.**

## HOUSING BY PRIVATE ENTERPRISE AND PUBLIC UTILITY SOCIETIES

IN the course of a recent lecture at the Garden Cities and Town-Planning Association, Mr. Ewart G. Culpin, after dealing with the causes which led to the present housing shortage, dealt with the position of private enterprise and Public Utility Societies under existing legislation.

Under the Chamberlain Act there was, he said, a subsidy of £6 for twenty years, which might be increased by the local authority up to £12; or there was the capitalised lump sum which stood at £75, also subject to an equal payment from the local authority. In practice, the capitalised sum was seldom increased beyond £100, or the yearly payment beyond £8. These houses might be for sale. The Wheatley scheme, for houses to let only, provided a subsidy of £9 for 40 years, and a number of authorities were adding £4 10s. to this. There was no capitalisation. In rural areas the Government grant was £12 10s.

These subsidies were open to all forms of private enterprise which would comply with the prescribed conditions. In the case of a Public Utility Society there was a very marked difference in the effect. A lump sum grant was undoubtedly of great value where societies had difficulty in raising the initial capital, but if the full 90 per cent. was received from the local authority the cost should not be great. In many cases, and particularly where the society was prepared to sell houses, a condition of membership might be a finding of the necessary percentage of cost; and in all cases where it was possible the tenant member should be encouraged to invest in the society. Not only did that provide capital, but it tended to procure greater interest and cheaper administration. Its effect was also seen in the cost of repairs. If out of rents a definite repair fund were set up, allocated to each house, with a proviso that monies not expended might be credited to the tenant's share account, there would often be found a striking diminution of the calls upon the management to carry out repairs.

In practice local authorities were very chary of lending 90 per cent., or indeed any proportion of the cost. Despite the Acts of Parliament, the advisers of local authorities very seldom looked at the 90 per cent., and indeed it was the unfortunate experience that, on the whole, they appeared to endeavour to prevent rather than assist the work of Public Utility Societies. There were, however, some exceptions, and where that was the case the success was great.

Private enterprise was in exactly the same position as societies, and the owner of a works might obtain the same facilities for his workpeople as were given to a society. He and they, however, must always conform to the requirements which stated that the houses must be let at a rent comparable with what was charged prior to the war, allowance being made for the 40 per cent. increase under the Rent Restriction Acts.

The Public Utility Society was the best and practically the only method by which private enterprise could now function, and with a growing understanding of the possibilities of these societies there was an increased demand for their utilisation. From all parts of the country inquiries were being addressed to the Association for information on what could be done, and recently no less than 200 societies had been registered. From all points of view a Public Utility Society had very great advantages over private ownership and management of property. The societies divided into two categories: (1) where they fulfilled a public function in providing houses for the general occupation of investor members and were supported by all classes of society; and (2) where a manufacturer who required houses for his own workmen preferred this form of organisation to private ownership. There was a further class which would probably expand in the future, and that was the municipal Public Utility Society, where the local authority, through the Public Utility Society, could enlist in the cause of housing all the town's social activities. Success depended almost entirely upon the spirit in which societies were launched. A society might be either a mere house-owning and rent-collecting body, or it might be an institution of very definite social value. If a manufacturer put upon the committee of management merely his own directors or officials the tenants would stand in the same relation as they would to an ordinary landlord, and there would be little co-operation or co-partnership. If, on the other hand, the definite social management were given over to the tenants and other interests, then there was an opportunity for a genuine experiment in house owning and management. In an ideal society every contributing factor should be represented upon the committee of management—the local authority, the tenants, the landowner, the workers and the firm—and it was remarkable to what state of efficiency such societies might be brought. Theoretically each tenant should be a shareholder, even if it was to a nominal extent only; and the tenants, as tenants, apart from being shareholders, should have definite representation upon the committee of management.

Provided that the financial interests of the loan stockholders were protected from injudicious use, there was every reason why management should be given to the tenants' committee as far as practicable. Such a committee would then be responsible for the social life of the new community, and by reason of its intimate touch with the life of the rest of the tenants could ensure a greater amount of harmonious co-operation than might otherwise be possible. From the point of view of the manufacturer also there was everything to be said for such a committee. It was now admitted that tied houses were bad, and that the management of works should as far as possible be separated from the management of the houses. That had very solid advantages in the case of trade disputes. The allotting of seats to members of the local authority had also a distinct advantage. Where the local authority was advancing money, it appeared to be in the public interest that a representative of the body should be on the committee of the society and have full access to all the books and know just what was going on.

As far as a Public Utility Society was concerned, there was no doubt as to the differing merits of the 1923 and 1924 Acts. A case in point was Swansea, where £100 was given under the 1923 Act and £13 10s. a year for forty years under the Wheatley Act. In the latter case rents could be reduced by 3s. or 3s. 6d. a week.

In Belgium and Holland practically all housing was done by Public Utility Societies, and in each country there was a partnership of various interests which was not possible in this country. For instance, in Belgium capital was lent by the State, by the province, and by the local authority, and there was a sort of "super-Public Utility Society" which looked after the formation, composition, and administration of all societies, the object being to see that they acted genuinely as societies of public utility, and not merely as a cloak for the making of private profits. The same organisation took power to purchase in bulk all materials required by the individual societies, and it used this power drastically in the case of an attempt to raise prices unduly; eliminating all middlemen and the profiteer, some materials were brought down 50 per cent.

If the Public Utility Society movement were going to make substantial progress in this country there must be an entire redrafting of the conditions governing their formation, composition, and operation. There were many difficulties attaching to a semi-State overseeing body, but something must be done to coordinate the work if houses were to be provided by this agency, and if those responsible for the working of the societies were not to be subject to the harassing uncertainties which hedged them about to-day. The Public Works Loan Board was hardly the proper body to lend loans for these societies as at present constituted, and there were many complaints of the valuations of the Office of Works when recommending the amount which could be granted on loan. The Registrar of Friendly Societies operated an antique law brought into existence for entirely different purposes. The percentage of loans from the Public Works Loan Board, or whatever individual department administered the loans, must be substantially higher than 66 per cent.; 75 or 80 per cent., spread over a long period, would do more to set housing going by private enterprise and Public Utility Societies than all the subsidies that had been suggested. It was almost inevitable that a lump-sum subsidy was absorbed in increased prices within a few months of its being put into operation. It acted in the Addison scheme; it acted in the Chamberlain scheme; and the whole of the hoped-for result had been lost. Long-term loans at a low rate of interest would be by far the better solution.

## SHEFFIELD HOUSING CONFERENCE

REPRESENTATIVES from many local authorities, and delegates of builders and operative from various parts of Yorkshire, were present at a recent conference held at Sheffield to discuss the problem of housing.

The Lord Mayor of Sheffield (Alderman A. J. Bailey), who presided, said the conference was called for the purpose of considering ways and means of any scheme that would assist in the influx of apprentices and skilled men into the building trades.

Alderman R. Coppock (General Secretary of the National Federation of Building Trades Operatives) said that during the last twenty years very few apprentices had been enrolled. He believed that there was real sincerity behind the question of the housing of the people providing they could keep costs at a decent level. Every business man in the industry realised that the dilution of unskilled men into skilled craftsmen's work meant an enormous increase in the cost of buildings erected. There should be one apprentice to every three craftsmen in every given area. By losing craftsmen in emigration they were losing the real wealth of the nation. Contracts should be let in accordance with the increased capacity of the industry to meet requirements. The natural habitation of the people, he said, was brick or stone. Alternative methods could not stand when they were able to produce the things that were necessary. Some 140,000 to 150,000 houses were going to be built this year, and they wanted to see that continually increased. They were **not** going to pursue the building of houses on a panic scale in the future.

Mr. C. Boot, of Sheffield, said that in one district he was called upon to build a large number of houses there was not a single bricklayer to be had. In a few months he had 70 bricklayers from other jobs, and the work was completed in twelve months. Was he expected to keep on one apprentice for every three skilled men? If so, what should he do at the end of the twelve months? Was he to have them on his hands?

Mr. C. J. Maslin (Secretary of the Building Industry National Committee, Ministry of Health), in reply, said that if there was a big contract in a certain area Mr Boot was liable for those apprentices for two years and two months. After that time he could rid himself of the responsibility.

Mr. W. H. Nicholls (Past President of the National Federation of Building Trade Employees) said that in the past there had been an atmosphere of suspicion, a want of patience, and a want of goodwill, but now things were different. Never before had the three parties to the contract been brought together. It would be a very fine piece of constructive statesmanship for this country if this could be made a success. Let them solve their difficulties one at a time, and eventually they would be able to say that Capital and Labour need not go on fighting.

# L.C.C. SCHOOL OF BUILDING

THE distribution of prizes and exhibition of work of the students of the London County Council School of Building, Ferndale-road, Brixton, took place on March 27. Mr. H. D. Searles Wood presided, and the prizes were distributed by Mr. J. Alfred Gotch, President Royal Institute of British Architects. Among those present were the Mayor of Lambeth, Professor Beresford Pite, Messrs. W. L. Bragg, G. Hicks, Fred Thorne, and representatives of the London County Council.

In the course of his opening address the chairman said the large attendance was very encouraging to the students and showed that in the training of craftsmen and upholding the dignity of craftsmanship they led the world.

The Mayor of Lambeth said that being in the building industry himself, he took a great interest in the school. They were all architects of their own fortunes, and when they saw the works on exhibition it was very difficult to believe that they were the work of young students. To those who had not won prizes he would say "Go ahead" and endeavour next year to be among the list of prize winners. On the platform they had many who were connected with building; they all took a great interest in the school which would continue in the future. Everyone connected with the school in Lambeth believed it was one of the finest in the world.

Mr. J. A. Gotch (President of the Royal Institute of British Architects), in the course of his address said it was his first visit to the school, and from what he had seen in his tour round it seemed to him to be advantageously adapted for the purpose for which it was intended. Looking round at the display of exhibits the observant would see among them the work of youths who, if they were not already highly skilled, would undoubtedly be so by the time they reached manhood, and would have an assured future in front of them. Throughout the story of architecture the craftsman held a very important and high place. Craftsmanship had always played an important part in producing masterpieces which were universally admired, and he could not believe that any modern ideas or methods of production could have extensive value without fine craftsmanship.

At the conclusion of Mr. Gotch's address the prizes were distributed as follows: —

### Medallists and Prize Winners.

TRADE CLASSES (EVENING).—First prize, £2 2s., and Institute of Builders' Silver Medal, R. D. Grange. Second prize, £1 1s., and Institute of Builders' Bronze Medal, and City and Guilds of London Major Examination Plumbers' Work (Final), Institute of Plumbers' second prize, £2 2s., J. Ratcliff. City and Guilds of London Major Examination Plumbers' Work (Final), Silver Medal, F. J. Lake. Associated Master Plumbers' Prize, £1 1s., A. E. Daniel.

GENERAL BUILDING CLASSES (EVENING).—First prize Building Construction, £2 2s., and School of Building Silver Medal, W. R. Seward. First prize Builders' Estimating, £2 2s., C. Kingslake. First Homework prize, £1 1s., H. G. Swann.

ARCHITECTURAL CLASSES (EVENING).—Sketch Club, first prize, £2 2s., A. E. Long; second prize, £1 1s., E. F. Wilson.

SENIOR DAY TECHNICAL SCHOOL.—Second Year: First prize £1 1s., F. S. Hockaday; second prize, 10s. 6d., G. W. Smith. First Year: First prize, £1 1s., C. G. Thompson; second prize, 10s. 6d., T. T. Allen.

JUNIOR DAY TECHNICAL SCHOOL.—Third Year: First prize, £1 1s., and Institute of Builders' Silver Medal, C. H. Stocker; (General Section), second prize, £1, D. Munro; (Trades Section), second prize, £1, A. W. Sado; (Painting and Decorating) second prize, £1, H. A. Knight; Special Brickwork Prize, 10s. 6d., A. E. Adams. Second Year: (General Section) First prize, 15s., H. H. Clark; (Trades Section) first prize, 15s., M. D. Burton; (Painting and Decorating) first prize, 15s., R. J. Lawrence. First Year: First prize, 15s., W. Henderson; second prize, 10s., E. J. Cook.

CRAFTSMEN'S COMPETITIONS. — Brickwork: Third prize, £1, and Diploma, and also special Diploma of the Worshipful Company of Tylers and Bricklayers, London, E. V. Cox. Carpentry: First prize, £5, and Diploma, and special prize, £1 6s. 3d., A. P. Callick; second prize, £2 10s., and Diploma, H. E. Begernie; third prize, £1, and Diploma, G. S. Dibbens. Joinery: First prize, £5, and Diploma, and special prize, £1 6s. 3d., W. L. Breeze; third prize, £1, and Diploma, T. C. Young. Masonry: First prize, £5, and Diploma, A. Low; third prize, £1, and Diploma, F. W. Walters. Painted Ornament: Third prize (equal), 6s. 8d., and Diploma, E. T. F. Painting. Plain Painting: First prize (equal), £2 10s., and Diploma and Painters' Company's prize, £1 5s., F. J. Lester; second prize, £2 10s., and Diploma, H. J. Okill. Plumbing: First prize, £5, and Diploma, T. E Freeman; second prize, £2 10s., and Diploma, F. J. Lake; third prize, £1, and Diploma, J. Ratcliff. Brickwork: Diploma and also special Diploma of the Worshipful Company of Tylers and Bricklayers, London, L. Wright. Carpentry: Diploma, L. M. Culley. Joinery—Diplomas: H. E. Begernie A. P. Callick, C. Chinchen, R. G. Grange, J. Royce. Plumbing—Diploma, E. J. Hoyle.

### Surveyors' Institution.

INTERMEDIATE EXAMINATION.—Pass and prize value £5 5s., T. H. Nunn. Pass: R. M. Cripps, A. E. Miller, C. B. Pope, W. J. Triggs.

### National Painters' Competition, 1924.

Class IV, Colour Combing and Scumbling, third prize, £1 1s., H. J. Okill. Class IV, Graining, first prize, £4 4s., H. J. Okill. Class IV, Writing, second prize, £3 3s., R. Collyer. Class IV, Special prize, £1 1s., F. J. Lester. Class III, Sketch Book Studies, first prize, £4 4s., G. M. Norris; second prize, £2 12s. 6d., H. White. Class III, Coloured Drawing, second prize, £3 3s., H. White. Class III, Ornamental Painting, first prize, £2 12s. 6d., and Institute of Decorators' Silver Medal, H. White; second prize, £1 11s. 6d., G. M. Norris. Class II, Stencilling, first prize, £2 2s., V. Royal; second prize, £1 1s., A. J. Coleman. Third "Stott" prize, £1 10s., G. M. Norris.

Mr. A. Sage, in his report on the work of the school, said they had had a record number of successes. The great majority of the students in the evening classes were entering either the building or allied trades, and those in the day classes were definitely doing so. Their total membership was a great improvement on the previous session. Letters he had received from employers proved the worth of the work of former students of the school. With reference to the classes for apprentices there had been a great improvement. He hoped the classes would continue to improve to the benefit in the future of both apprentices and employers. The money spent on the school was not extravagance, but well expended and brought a good return. In conclusion, Mr. Sage paid a warm tribute to the work of the members of the advisory sub-committee.

Major R. J. Holliday, in proposing a vote of thanks to Mr. Gotch, expressed on behalf of the Institute of Builders appreciation of what the technical authorities were doing in the interests of building and craftsmanship.

Mr. Fred Thorne and Mr. George Hicks also spoke.

# COMPARISON OF PRICES OF BUILDING MATERIALS BETWEEN AUGUST 4, 1914, AND APRIL 1, 1925

| Material. | Aug. 4, 1914. £ s. d. | Nov. 11, 1918. £ s. d. | Mar. 1, 1925. £ s. d. | April 1, 1925. £ s. d. | Rise or Fall during Month. (Per cent.) |
|---|---|---|---|---|---|
| **Bricks—** | | | | | |
| Best Stocks | 1 16 6 | 3 3 6 | 4 3 6 | 4 3 6 | — |
| Flettons | 1 14 0 | 2 7 8 | 2 13 3 | 2 13 3 | — |
| Glazed | 13 0 0 | 17 17 6 | 23 0 0 | 23 0 0 | — |
| Thames Ballast | 5 9 | 17 0 | 10 6 | 10 6 | — |
| Thames Sand | 7 3 | 17 0 | 14 6 | 14 6 | — |
| Shingle (¾ in.) | — | 15 0 | 12 9 | 12 9 | — |
| Portland Cement | 1 17 0 | 3 8 0 | 2 18 0 | 2 18 0 | — |
| Ground Blue Lias Lime | 1 0 0 | 2 2 6 | 2 4 6 | 2 4 6 | — |
| Grey Stone Lime | 1 8 0 | 2 7 0 | 2 11 9 | 2 11 9 | — |
| Bath Stone | 1 7½ | 1 7 | 2 9½ | 2 9½ | — |
| Portland Stone | 2 4½ | 2 10½ | 4 4 | 4 4 | — |
| **Good Sound Building Timber—** | | | | | |
| 4 in. × 11 in. | 16 10 0 | 53 0 0 | 32 0 0 | 32 0 0 | — |
| 3 in. × 7 in. | 13 0 0 | 46 0 0 | 23 0 0 | 23 0 0 | — |
| 3 in. × 11 in. | 15 0 0 | 50 0 0 | 28 0 0 | 28 0 0 | — |
| 2 in. × 11 in. | — | 51 0 0 | 28 0 0 | 28 0 0 | — |
| 2 in. × 7 in. | — | 46 0 0 | 22 0 0 | 22 0 0 | — |
| 3 in. × 4 in. | — | — | 23 0 0 | 23 0 0 | — |
| **Slates—** | | | | | |
| 24 in. × 12 in. | — | — | 37 12 6 | 37 12 6 | — |
| 22 in. × 12 in. | — | — | 34 0 0 | 34 0 0 | — |
| 20 in. × 10 in. | — | — | 25 12 6 | 25 12 6 | — |
| 16 in. × 10 in. | — | — | 17 12 6 | 17 12 6 | — |
| 16 in. × 8 in. | — | — | 13 15 0 | 13 15 0 | — |
| R.S. Joists | 9 10 0 | — | 13 10 0 | 13 10 0 | — |
| **Iron—** | | | | | |
| Common Bars | 9 0 0 | 16 10 0 | 13 10 0 | 13 10 0 | — |
| Mild Steel Bars | 9 5 0 | 21 0 0 | 12 0 0 | 12 0 0 | — |
| Steel Bars | 9 5 0 | 19 10 0 | 12 10 0 | 12 10 0 | — |
| Cut Nails | 11 10 0 | 29 0 0 | 20 10 0 | 20 10 0 | — |
| Sheet Lead | 22 15 0 | 40 0 0 | 50 10 0 | 47 10 0 | —5.94 |
| **Glass—** | | | | | |
| 15 oz. Sheet | 2 | 7 | 3½ | 3½ | — |
| 21 oz. „ | 3 | 8 | 5 | 5 | — |
| 26 oz. „ | 3½ | 9 | 6 | 6 | — |
| Raw Linseed Oil | 2 4 | 8 4 | 4 9 | 4 6 | —5.26 |
| Turpentine | 2 6 | 11 0 | 5 9 | 5 9 | — |
| Ground English White Lead | 30 5 0 | 60 10 0 | 58 5 0 | 58 5 0 | — |
| White Lead Paint | — | 83 10 0 | 79 5 0 | 79 5 0 | — |
| Red Lead | 28 10 0 | 47 0 0 | 56 0 0 | 56 0 0 | — |

# NEW BUILDINGS IN LONDON

**Hendon.**—A contract between the Hendon Board of Guardians and Messrs. George Parker & Sons, Ltd., 124, Sumner-road, S.E.18, is about to be approved by the Ministry of Health for the building of a new hospital. The new buildings will cost approximately £123,591. The consulting engineers are Messrs. Dolby & Williamson, 8, Princes-street, S.W.1; the quantity surveyors, Messrs. John Leaning & Sons, 28, John-street, W.C.1, and the architects, Messrs. Paine & Hobday, 45, Bedford-row, W.C.1.

**Tudor-street.**—Foundations are now being constructed on an extensive scale for the large printing works at the corner of Tudor-street and Bouverie-street, E.C., which are being built for the Associated Newspapers, Ltd., of Carmelite House, E.C.4. The general contractors are Messrs. Allen Fairhead & Son, Sydney-road, Enfield. The architects are Messrs. Herbert O. Ellis & Clarke, 3, Old Queen-street, S.W.1.

**Denmark Hill.**—Quantities are being prepared and other detail work got out for the large training college at Denmark Hill, S.E., for the Salvation Army. The cost will be about £250,000. The associated architects are Sir Giles Gilbert Scott, R.A., 7, Gray's Inn-square, W.C.1, and Mr. Alexander Gordon, M.S.A., 97, Queen Victoria-street, E.C.4. The quantity surveyors are Messrs. Fleetwood, Emsden & King, 3, New-court, Lincoln's Inn, W.C.2.

**St. Pancras.**—The governors of the North-Western Polytechnic propose to proceed with their building scheme in the course of the year. The school is estimated to cost £100,000, and may be built in two portions. The architects are Messrs. Riley & Glanfield, FF.R.I.B.A., 6, Raymond Buildings, W.C.

**Regent-street.**—New premises are being built at the corner of Regent-street and Burlington-street, W.1, for the American Shoe Co. The contractors are Messrs. Monnoyer British Construction Co., Ltd., 6, New Burlington-street, W.1. The architects are Messrs. Henry Tanner, 3, Hanover-square, W.1.

**Paddington.**—New showrooms and offices, with several stories of flats above, are to be built at the corner of Bishop's-road and Queen's-road, W.2. by the Gas Light and Coke Company, Ltd., of Horseferry-road, S.W.1. A brick building with terra-cotta or stone dressings will be erected to the designs of Mr. H. Austen Hall, 6, New Burlington-street, W.1.

**Ilford.**—A new block of shops and showrooms is to be built in High-road, Ilford, for Messrs. Harrison, Gibson, Ltd., house furnishers. A steel-framed building has been designed by Messrs. Clemens Bros., Ltd., 77, Derby-road, E.7.

**Fleet-street.**—The premises known as No.7, Wine Office-court, off Fleet-street, E.C.4, are to be acquired by the National Church League, and adapted as headquarters as a memorial to the late Dean Wace. The architect is Professor Beresford Pite, 101, Great Russell-street, W.C.1.

**Catford.**—A new church is to be built at Southend, Catford, S.E.6. Another church in this district is now in course of erection, the contractors being Messrs. Walden & Sons, of Henley-on-Thames. The architect for both buildings is Sir Charles Nicholson, Bart., of 2, New-square, Lincoln's Inn, W.C.

**Borough High-street.**—New shops and showrooms are to be built at Nos. 306–308, Borough High-street, S.E.1, as branch premises for Messrs. Boots' Pure Drug Co., Ltd., of Nottingham. A building of three stories is proposed, built by the company's own building department, under the direction of Mr. Gregory, staff architect.

**Old Broad-street.**—New offices are being erected in Old Broad-street, E.C.2, by the General Building Co., 48, St. Martin's-lane, W.C.2. The architect is Mr. Paul Hoffman, Capel House, New Broad-street, E.C.2.

**Little Britain.**—Demolition is practically complete prior to the erection of the second nurses' hostel at St. Bartholomew's Hospital in Little Britain, E.C.1. The new building will cost £90,000. The contractors are Messrs. Dove Bros., Ltd., of Cloudesley-place, Islington. N.1. The architect is Mr. Edmund Matthews, F.R.I.B.A., 3, Paul's Bakehouse-court, E.C.4.

**Bermondsey.**—Extensions are being made to the Bermondsey Brewery, S.E.1, for Messrs. Noakes & Co., Ltd. The contractor is Mr. J. Parsons, 190, Waterloo-road, S.E.1. The architect is Mr. Nowell Parr, 42, Cranley-gardens, South Kensington, S.W.7.

**Kensington.**—The Board of Governors of the Kensington, Fulham and Chelsea General Hospital undertook to raise £100,000 by March 31, in order to rebuild their institution. Plans have been drawn up by their honorary architect, Sir Aston Webb, R.A., 17, Queen Anne's-gate, S.W.1.

**Oxford-street.**—Good progress is being made on the new Eastern Block of the premises of Messrs. Peter Robinson, Ltd., in Oxford-street, W.1. The contractors are Messrs. Higgs & Hill, Ltd., South Lambeth-road, S.W. The consulting engineers are Messrs. E. P. Wells, Cocking & Meston. The architects are Messrs. T. P. Clarkson and H. Austen Hall.

**Cheapside.**—Steelwork is now being erected for the 7-story branch offices in Cheapside and St. Martins-le-Grand, E.C.2, for the Westminster Bank, Ltd. The general contractors are Messrs. Prestige & C., Ltd., 149, Grosvenor-road, S.W.1. The architects are Messrs. Gunton & Gunton, Finsbury House, Blomfield-street, E.C.2.

**South Kensington.**—Tenders are now being invited for the completion of the second section of the Science Museum buildings in Exhibition-road, South Kensington, S.W.7. This is the building for which a provisional estimate of £269,000 has been presented before Parliament. Plans have been prepared by H.M. Office of Works, Storey's Gate, S.W.1, under the direction of Mr. J. H. Markham.

**Willesden.**—The London, Midland & Scottish Railway Co. have decided to build extensive locomotive sheds and repair shops at Willesden, N.W.10, to accommodate about 50 engines and tenders. Plans have been prepared by Mr. F. F. C. Trench, chief engineer, Euston Station, N.W.1.

**Shoreditch.**—Large canopies for the shelter of queues are to be erected outside the London Music Hall, in Shoreditch High-street, E. The architect is Mr. Victor S. Peel, 17, Temple-street, Birmingham.

**Neasden.**—New works and warehouses are being built at Neasden, N.W.10, for the Royal Sovereign Pencil Co., Ltd., of Britannia Pencil Works, N.W.10. The plans have been prepared by Mr. S. A. S. Yeo, A.R.I.B.A., 2, St. John-street, E.C.1.

**Walthamstow.**—Large extensions to the Walthamstow, Wanstead & Leyton Children's and General Hospital, in Orford-road, E.17, are estimated to cost £25,000. Two-story buildings, consisting of wards, nurses' home, etc., are to be built, for which tenders have been invited. The architect is Mr. J. Andrew Minty, A.R.I.B.A., 35, Craven-street, Strand, W.C., the quantity surveyors being Messrs. Waggett & Bradford, 12, Regent-street, W.1.

**Edmonton.**—A contract has been placed for the rebuilding of the "Stag & Hounds" public-house in Bury-street, Edmonton, N.9, owned by Messrs. Christie & Co., of Hoddesdon, Herts. The architects, Messrs. Dudley, Newman & Elliott, 29, Bedford-row, W.C.1, have designed a building of two floors. The contractors are Messrs. R. Ginn & Son, St. Andrew's Works, Hertford.

**Ilford.**—Alterations and additions are to be made to the public-house, "Royal Oak," at Becontree, and plans have been recently approved by the licensing authorities. The architect is Mr. Ed. Meredith, A.R.I.B.A., 7, Goodmayes-road, Goodmayes, Essex.

**Abbey Wood.**—Plans have been approved for the conversion of the premises known as Wynford, Woolwich-road, S.E., into a licensed hotel and café restaurant. The architects are Messrs. J. O. Cook & Sons, 19, Eleanor-road, S.E.18.

**Brixton.**—The directors of Bon Marché, Ltd., Brixton-road, S.W., are rebuilding the premises adjoining of Messrs. Quin & Axten, Ltd., which they own. The architect is Mr. H. Payne Wyatt, 465, Brixton-road, S.W.9.

**Rucklidge-avenue.**—Premises at Rucklidge-avenue, N.W.1, have been purchased by Messrs. Pilgrim Bros. (Bishop's Stores), Ltd. The architect is Mr. G. A. Sexton, 42, High-street, N.W.6.

**St. Martin's-le-Grand.**—Foundation work and the erection of preliminary steelwork is in hand for the new block of offices in St. Martin's-le-Grand and Cheapside, E.C.2, for the Cheapside Land Development Co., Ltd., 3-4, Lothbury, E.C.2. Estimated to cost £400,000, the general contractors for the work are Messrs. Arthur Vigor, Ltd., 20, Knightsbridge, S.W. The architects are Messrs. Gunton & Gunton, Blomfield-street, E.C.2.

**North Kensington.**—An appeal has been issued for funds for building the new Princess Louise Kensington Hospital for children in St. Quinton-avenue, W.10. The building will cost £80,000. The architects are Messrs. J. T. Saunders, F.R.I.B.A., 1a, Linden-gardens, W.2, and George A. Lansdown, F.R.I.B.A., 9, Regent-street, W.1.

**Greenwich.**—A contract is shortly to be commenced providing for the long-delayed extensions of the Miller General Hospital, Greenwich-road, S.E.10. These will include a 3-ward block and nurses' home, estimated to cost £70,000. The quantity surveyor is Mr. W. J. Falkner, of 12, Carteret-street, S.W.1, the architects being Messrs. William A. Pite, Son & Fairweather, 12, Carteret-street, S.W.1.

**Little Britain.**—A large stretch of business premises in St. Bartholomew's-close, Little Britain, E.C.1, is to be extensively altered and converted into offices and warehouses. A lift is to be installed and the entire building redecorated. The architect is Mr. H. E. Knight, F.S.I., 42, Poultry, E.C.2.

**Piccadilly Circus.**—Work on the sinking of the first service shaft in connection with the new "Underground" tube station at Piccadilly-circus, W.1, has just been started by Messrs. John Cochrane & Sons, Ltd., 39, Victoria-street, S.W.1, the contractors. The director of reconstruction is Mr. Z. R. Knapp, Electric Railway House, Broadway, S.W.1. The architect is Mr. S. A. Heaps.

**Cheyne-walk.**—Crosby Hall, Cheyne-walk, S.W.3, has been acquired by the British Federation of University Women to use as a residential club, at a total cost of £50,000. The architects are Messrs. Wratten & Godfrey, 18, Queen Anne's Gate, S.W.1.

**St. Martin's-le-Grand.**—It is proposed to build a large extension of the General Post Office in St. Martin's-le-Grand, E.C.2. Plans have been prepared by Mr. J. H. Markham, of the Architects' Department, H.M. Office of Works, Storey's Gate, S.W.1.

**Brixton.**—Alterations and additions are to be made to the premises at Brixton-road and Camberwell New-road, S.W.2, of the British Motor Cab Co., Ltd. The architects are Messrs. Tubbs & Messer, Craig's Court House, Charing Cross, S.W.1.

**Regent-street.**—Work will shortly be put in hand for the rebuilding of the large shop and showroom premises at 163-168, Regent-street, W.1, occupied by the International Fur Stores, a branch of Messrs. Jays, Ltd., also of Regent-street. The architects are Messrs. Henry Tanner, 3, Hanover-square, W.1.

**Shoreditch.**—A new elementary school is to be built in Crondall-street, E., by the L.C.C. Education Committee. The cost is estimated at £41,300. The plans are being prepared under the supervision of Mr. G. Topham Forrest, F.R.I.B.A., Architect to the Council.

**Kensington.**—Nos. 26 & 28, Church-street, W.8, have been acquired on building lease from the L.C.C. by Messrs. N. A. Cooper & Co., 47, Earl's Court-road, W.8.

# A NEW POINT UNDER THE RENT ACTS.

A QUESTION was brought before a Divisional Court, constituted of Lord Justice Bankes and Mr. Justice Greer, in the case Phillips *v.* Hallahan (*The Times*, March 20), which the Court stated had never been raised in that form before in any previous case. The premises in question consisted of a dwelling house and shop. In 1912 the house together with the rooms above the shop and storehouse had all been let to a tenant as one at an annual rent of £28. In 1913 the then tenant had let off the shop separately. There was no evidence as to the structure of the premises or whether there was separate access to the shop, but the Court said it might be taken that the shop was capable of being separately occupied by the tenant. The sub-tenant of the shop had given up the tenancy before August 3, 1914; whether the premises were then again occupied as one, does not appear from the report, but in 1919 the appellant in this case had purchased the whole premises and occupied both the house and the shop herself until 1920, when the shop was again separately let to a tenant. In 1923 the shop in the meantime again having become vacant the whole premises were let in two separate lettings to the respondent in this case. There was no tenancy agreement, but two separate rent books were kept. The appellant had claimed possession of the shop, and the County Court judge had dismissed this application on the ground that the appellant could not by a separate letting take a portion of the premises out of the Act, there having been no reconstruction or alteration of identity, and although the shop and the dwelling house were as a fact let under separate lettings *bona fide* the shop still remained under the Act.

Apparently the respondent relied upon section 12 subsection (6) of the Rent Act, 1920: "Where this Act has become applicable to any dwelling house or any mortgage thereon it shall continue to apply thereto whether or not the dwelling house continues to be one to which this Act applies." Subsection (2) (ii) of the same section provides: "The application of this Act to any house or part of a house shall not be excluded by reason only that part of the premises is used as a shop or office or for business, trade, or professional purposes." By section 13 subsection (3) the application of the Act to business premises was only to continue in force until June 24, 1921.

The Court held that there was nothing in the Act to prevent a landlord from turning premises which were within the Act either in their entirety or in part into business premises, and if this was done the Act would no longer apply to the business portion. The Court cited Williams *v.* Perry (1924, 1 K.B. 936; *The Builder*, May 2, 1924) and Prout *v.* Hunter (1924, 2 K.B. 736; *The Builder*, May 30, 1924) as covering the point raised in this case.

In the first of these two cases the premises from August, 1914, till March, 1919, had been occupied by a tenant who used them partly as a dwelling house and partly for business premises. In 1919 (that is, before business premises were brought within the legislation) they were verbally let to a tenant who was only to use them as business premises, but in breach of agreement he used them partly for dwelling purposes. Apart from this question of breach of agreement, it was held by a Divisional Court that the premises could be converted into business premises by agreement between the parties, and the agreement and the user of the premises separated to take them out of the Act as well as though structural alterations had been made.

In Prout *v.* Hunter the landlord had let an unfurnished flat to a tenant who did not occupy it herself but furnished it and let it as a furnished flat. The landlord was seeking to obtain possession, but the tenant claimed that the premises were protected by the Act: The Court of Appeal held that as a furnished flat it lost the protection of the Act under section 12 subsection (2) (i).

In both these cases section 12 subsection (6) were considered.

# RATES OF WAGES IN THE BUILDING TRADE

**Every endeavour is made to ensure accuracy, but we cannot be responsible for errors.**

| | Masons. | Bricklayers. | C'p'ters. Joiners. | Plasterers. | Slaters. | Plumbers. | Painters. | Labourers. |
|---|---|---|---|---|---|---|---|---|
| Aberdare | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Accrington | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Altrincham | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Ashton-under-Lyne | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Barnsley | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Barrow-in-Furness | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Barry | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Bath | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/1½ |
| Bedford | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/1½ |
| Birkenhead | 1/9 | 1/9 | 1/8½ | 1/9 | 1/9 | 1/9 | 1/8½ | 1/4 |
| Birmingham | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Bishop Auckland | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Blackburn | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Blackpool | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Bolton | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Bournemouth | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/1½ |
| Bradford | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Brentwood | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/2 |
| Bridgwater | 1/5 | 1/5 | 1/5 | 1/5 | 1/5 | 1/5 | 1/5 | 1/1 |
| Brighton | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/1½ |
| Bristol | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Burnley | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Burton-on-Trent | 1/7 | 1/7 | 1/7 | 1/7 | 1/7 | 1/7 | 1/7 | 1/2½ |
| Bury | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Cambridge | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/1½ |
| Cardiff | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Chatham | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/1½ |
| Chelmsford | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/1½ |
| Cheltenham | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/1½ |
| Chester | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Chesterfield | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Colchester | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/1½ |
| Coventry | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Crewe | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/2 |
| Darlington | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Derby | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Doncaster | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Dudley | 1/7 | 1/7 | 1/7 | 1/7 | 1/7 | 1/7 | 1/7 | 1/2½ |
| Durham | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| E. Glam.(Mon. Vall) | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Eastbourne | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/1½ |
| Exeter | 1/7 | 1/7 | 1/7 | 1/7 | 1/7 | 1/7 | 1/6 | 1/2½ |
| Folkestone | 1/4½ | 1/4½ | 1/4½ | 1/4½ | 1/4½ | 1/4½ | 1/4½ | 1/0½ |
| Gloucester | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/5 | 1/1½ |
| Grantham | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/2 |
| Grays | 1/8½ | 1/8½ | 1/8½ | 1/8½ | 1/8½ | 1/8½ | 1/7½ | 1/3½ |
| Grimsby | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Great Yarmouth | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/1½ |
| Guildford | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/1½ |
| Halifax | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Harrogate | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Hartlepools | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Hastings | 1/4½ | 1/4½ | 1/4½ | 1/4½ | 1/4½ | 1/4½ | 1/4½ | 1/0½ |
| Hereford | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/5 | 1/1½ |
| Huddersfield | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Hull | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Ipswich | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/1½ |
| Lancaster | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Leamington Spa | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/2 |
| Leeds | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Leicester | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Lichfield | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/2 |
| Lincoln | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Liverpool | 1/9 | 1/9 | 1/8½ | 1/9 | 1/9 | 1/9 | 1/8½ | 1/4 |
| Llanelly | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| London { 12 m. radius | 1/9½ | 1/9½ | 1/9½ | 1/9½ | 1/9½ | 1/9½ | 1/8½ | 1/4½ |
| London { 12-15 m. radius | 1/9 | 1/9 | 1/9 | 1/9 | 1/9 | 1/9 | 1/8 | 1/4 |
| Loughborough | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Luton | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/1½ |
| Maidstone | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/1½ |
| Manchester | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Mansfield | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Merthyr Tydfil | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Middlesbrough | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Newcastle-on-Tyne | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Newport, Mon. | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Northampton | 1/7 | 1/7 | 1/7 | 1/7 | 1/7 | 1/7 | 1/7 | 1/2½ |
| Norwich | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/1½ |
| Nottingham | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Oakham | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/1½ |
| Oldham | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Oxford | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/1½ |
| Plymouth | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/7 | 1/3½ |
| Pontypridd | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Portsmouth | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/1½ |
| Preston | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Reading | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/1½ |
| Rochdale | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Rochester | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/1½ |
| Rugby | 1/7 | 1/7 | 1/7 | 1/7 | 1/7 | 1/7 | 1/7 | 1/2½ |
| St. Albans | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/2 |
| St. Helens | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Scarborough | 1/7½ | 1/7½ | 1/7½ | 1/7½ | 1/7½ | 1/7½ | 1/7½ | 1/2½ |
| Sheffield | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Shrewsbury | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/2 |
| Southampton | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/1½ |
| Southend-on-Sea | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/1½ |
| Southport | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| South Shields | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Stockport | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Stockton-on-Tees | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Stoke-on-Trent | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Stroud | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5 | 1/1½ |
| Sunderland | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Swansea | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Swindon | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/5 | 1/1½ |
| Taunton | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/1½ |
| Torquay | 1/7 | 1/7 | 1/7 | 1/7 | 1/7 | 1/7 | 1/7 | 1/2½ |
| Tunbridge Wells | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/5½ | 1/1½ |
| Wakefield | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Walsall | 1/7 | 1/7 | 1/7 | 1/7 | 1/7 | 1/7 | 1/7 | 1/2½ |
| Warrington | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| West Bromwich | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Wigan | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Windsor | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/1½ |
| Wolverhampton | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |
| Worcester | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/2 |
| York | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/3½ |

(For rates of wages in the Building Trade in Scotland, see page 551.

# CONTRACTS, COMPETITIONS, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

*The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in; the name and address at the end is the person from whom or place where quantities, forms of tender, &c., may be obtained.*

## BUILDING, PAINTING, ELECTRIC LIGHTING, HEATING, etc.

APRIL 4.—**Ballyshannon.**—REPAIRS.—To cottages in Ballyshannon R.D. Scheme No. 53, in accordance with plan and specification prepared by the Engineer, Sailors' and Soldiers' Department, Colonial Office (Irish Branch), 30, Lower Fitzwilliam-street, Dublin. Deposit £1 1s.

APRIL 4.—**Clogheen.**—REPAIRS.—To cottages in Clogheen (co. Tipperary) R.D. Scheme No. 130, in accordance with plan and specification prepared by the Engineer, Sailors' and Soldiers' Department, Colonial Office (Irish Branch), 30, Lower Fitzwilliam-street, Dublin. Deposit £1 1s.

APRIL 4.—**Formby.**—HOUSES.—Thirty-six houses of the non-parlour type, for the U.D.C. E. H. Bond, Clerk of the Council. Deposit £2 2s.

APRIL 4.—**Glasgow.**—CONVENIENCES.—At Lorne-square, Govan, for the T.C. J. Lindsay, Town Clerk.

APRIL 4.—**Glasgow.**—REPAIRS.—To the buildings and steadings of the farms of Ledrishbeg, Mollanbowie, Over Balloch, and Ledrishmore, on Balloch estate, for the T.C. J. Lindsay, Town Clerk.

APRIL 4.—**Ramsey.**—HOUSES.—For 16 houses, opposite Gladstone-terrace, for the Town Commissioners. G. Kay & Sons, architects, 22, Athol-street, Douglas.

APRIL 4.—**Southampton.**—CLASSROOM AND NEW OFFICES.—Erection of an additional classroom and new offices at Lee-on-the-Solent Council School, for the County Council of Southampton. Mr. A. L. Roberts, County Architect, The Castle, Winchester. Deposit £1 1s., by cheque, payable to the Hants County Council, and crossed "Lloyds Bank, Ltd., Capital and Counties Branch Winchester."

APRIL 4.—**West Ham.**—PAINTING AND REPAIRING—Of schools, for C.B. J. N. Jacques, 61, West Ham-lane, Stratford, E.15. Deposit £1.

APRIL 4.—**Winchester.**—COUNCIL SCHOOL.—At Christchurch, near Bournemouth, for Southampton C.C. A. L. Roberts, County Architect. Deposit £2 2s.

✱APRIL 6.—**Amersham.**—ELECTRIC LIGHT.—Installation of electric light, for the B.G. E. E. Fetch, A.R.I.B.A., architect. Deposit £1 1s.

APRIL 6.—**Barry.**—HOUSES.—For (*a*) 16 semi-detached parlour type houses, and (*b*) 34 semi-detached non-parlour type houses, between Trinity-street and College-road, for the U.D.C. E. R. Hinchsliff, architect, Council Offices. Deposit, £1 1s.

APRIL 6.—**Beddington and Wallington, Surrey.**—HOUSES.—External painting work on 68 houses, for the U.D.C. Engineer and Surveyor, Council Offices, Wallington.

✱APRIL 6.—**Birmingham.**—BUILDING.—Work in connection with the new motor bus depot, for the Tramways Committee of the City. General Manager, Council House, Congreve-street. Deposit £2 2s.

✱APRIL 6.—**Birmingham.**—BUILDING.—Secondary school in Selly Oak-road, King's Norton, for the Birmingham, E.C. Finance Department, Education Office, Council House, Margaret-street. Deposit £2.

APRIL 6.—**Carlisle.**—PAINTING.—Painting of the external woodwork and ironwork, &c., in connection with the Hospital, Sanatorium and Nurses' Home, at Fusehill institution, for the B.G. John Gorton, Clerk to the Guardians, 7, Victoria-place.

APRIL 6.—**Chelmsford.**—ROOFING.—For re-roofing 26 houses in Woodland-road, Boarded Barns estate, for the C.B. Borough Engineer.

APRIL 6.—**Dublin.**—WIRING.—Electric wiring of 180 houses at Marino, for the C.B. J. J. Murphy, Town Clerk. Deposit £1 1s.

APRIL 6.—**Frinton-on-Sea.**—CONVENIENCE.—On the sea front at Frinton, for the U.D.C. Surveyor.

APRIL 6.—**Gloucester.**—HOUSES.—100, for the Corporation of the City of Gloucester. City Surveyor, Guildhall, Gloucester. Deposit £5 5s.

APRIL 6.—**Galashiels.**—TRADES.—Excavator, brick and mason work, carpenter and joiner work, plumber work, slater work, plaster and roughcast work, glazier and pointer work, for four blocks of houses, for the T.C. J. & J. Hall, architects, Galashiels.

APRIL 6.—**Glasgow.**—ELECTRIC LIGHT.—Installation at St. David's School, St. James'-road, Townhead, for the E.C. J. Clark, Director of Education. Deposit £1 1s.

APRIL 6.—**Glyncorrwg.**—RESERVOIR.—Massed concrete service reservoir, filter beds, &c., and also the excavating for and laying and jointing 6 in., 4 in., and 3 in. cast iron pipes and fittings, for the U.D.C. W. P. Jones, Engineer and Surveyor. Deposit £2 2s.

APRIL 6.—**Ilford.**—COTTAGES.—12 cottages at the rear of the Electricity Works, Ley-street, for the U.D.C. H. Shaw, engineer and surveyor. Deposit, £2 2s.

APRIL 6.—**Kidderminster.**—RESERVOIR.—Reinforced concrete reservoir at Axborough Hill, engine and pump house, &c., at Cookley Bridge, and the laying and jointing of about seven miles of 4 in. and 3 in. cast iron water pipes and provision of fittings, for the R.D.C. Fiddian & Deeley, engineers, 13, Church-street, Stourbridge. Deposit £3 3s.

APRIL 6.—**Linlithgow.**—HOUSES.—Various works or eight houses at Cauldimmery, Edinburgh-road; three houses at Paddockhall, and two houses at Borrowstoun, for the D.C. W. M. Scott, architect.

APRIL 6.—**Manchester.**—PAINTING.—External painting at the Royal Exchange. Major R. J. Allen, Master.

APRIL 6.—**Mossley.**—HOUSES.—Twenty houses at the Fox Platt housing site, for the T.C. Borough Surveyor. Deposit £2 2s.

APRIL 6.—**Near Leeds.**—PAINTING.—Outside painting of several buildings at the Mental Hospital, Menston, for the West Riding C.C. W. E. H. Burton, architect and engineer, Mental Hospitals Board Offices, Wakefield.

APRIL 6.—**Nottingham.**—ALTERATIONS.—Alterations and additions to 28, Chaucer-street, for the T.C. T. Wallis Gordon, City Engineer and Surveyor. Deposit £2.

APRIL 6.—**Nottingham.**—PAINTING.—Internal and external painting at the proposed special school, Nottingham-road and Zulu-road, for the T.C. T. Wallis Gordon, City Engineer. Deposit £1.

APRIL 6.—**Par (Cornwall).**—COTTAGE.—At Par, for the Territorial Army Association. A. J. Cornelius, F.R.I.B.A., Architect, Truro.

APRIL 6.—**Ripon.**—HOUSES.—For 12 houses, for the T.C. J. H. Gough, Town Clerk, Town Hall. Deposit £5.

APRIL 6.—**Walsall.**—HOUSES.—For 40 parlour type houses on the Pelsall-lane site at Rushall, also for 8 bungalows on the Walsall Wood-road site at Aldridge, for the R.D.C. T. H. Partridge, Clerk to the Council, Darwall-street. Deposit £2 2s.

APRIL 6.—**Wigan.**—RECONSTRUCTION.—Reconstruction of the fish market, at Market-square, for the C.B. R. B. Donald, Borough Engineer.

✱APRIL 7.—**Acton, W.3.**—(*a*) Extensions to baths, (*b*) taking down East Acton School and clearing site, for the Borough Council. Borough Surveyor, Municipal Offices, Acton, W.3.

APRIL 7.—**Ashford, Kent.**—Alterations and additions to the Working Men's Club. Edwin A. Jackson, Architect, Ashford, Kent.

APRIL 7.—**Belfast.**—FOUNDATIONS.—For the proposed war memorial in the City Hall grounds, for the C.B. W. H. Stephens & Son, 13, Donegall-square North. Deposit £1 1s.

✱APRIL 7.—**Dudley.**—Extension to Dudley Grammar School. The Clerk to the Governors, 265, Castle-street, Dudley. Deposit £2 2s.

APRIL 7.—**Dunstable.**—COTTAGES.—Erection of 18 cottages at the Watling-street site for the Corporation of the Borough of Dunstable. Mr. W. F. Wilkins, Borough Surveyor and Architect, Town Hall, Dunstable. Deposit £1 1s.

APRIL 7.—**Edinburgh.**—REPAIRS.—To the roofs of houses, for the Commissioners of Northern Lighthouses. D. A. Stevenson, engineer. Deposit £1 1s.

APRIL 7.—**Hornsey.**—FENCING.—Wood and iron, for Hornsey U.D.C. The Engineer and Surveyor, Town Hall, Highgate, N.

APRIL 7.—**Loughborough.**—FENCING.—192 lineal yds. of fencing, for the C.B. W. Granger, Borough Surveyor.

APRIL 7.—**Maidstone.**—OFFICES.—Erection of offices at St. Peter-street, Maidstone, for the Maidstone Gas Company. Mr. F. Livesey, M.Inst.C.E., Gas Works, Maidstone. Deposit £2 2s.

APRIL 7.—**Penarth.**—HOUSES.—Thirty houses on sites in Andrew-road, Cogan; 11 houses on sites in Cawnpore-street, Cogan; and two houses on sites in Agnes-street, Cogan, for the U.D.C. J. W. Morris, clerk, Council Offices. Deposit £2 2s.

APRIL 8.—**Huddersfield.**—ALTERATIONS.—To High-street Chapel Sunday School. J. Berry & Sons, Architects and Surveyors, 3, Market-place.

✱APRIL 8.—**London, E.2.**—Roofs stripping and reslating of St. Leonard's House, for the Guardians of St. Leonard, Shoreditch. Guardians' Architect, Parliament Mansions, Victoria-street, S.W.1.

APRIL 8.—**Okehampton.**—DWELLINGS.—Eight Dwellings at Chagford, four at Inwardleigh, two at Beaworthy, for the R.D.C. P. Pearce, Sanitary Inspector, North Tawton.

APRIL 8.—**Pontypool.**—HOUSES.—Fifty, upon sites at Brynwern and Glanwern, for the U.D.C. Surveyor to the Council. Deposit £5.

APRIL 8.—**Birkdale (Southport, Lancs).**—TELEPHONE EXCHANGE.—Erection of, for the Commissioners H.M. Office of Works (Contracts Branch), King Charles-street, S.W.1. Deposit £1 1s.

APRIL 8.—**Bristol.**—OFFICES.—At the Council House, Bristol, for the T.C. C. E. Dawson, City Estates Surveyor and Valuer, The Exchange, Corn-street. Deposit £1 1s.

APRIL 8.—**Hebburn.**—CONVERSION.—Of 3,536 privy box closets into water-closets, for the U.D.C. R. McKellar, Sanitary Inspector.

APRIL 8.—**Kirkburton.**—PAINTING.—Outside painting of several buildings at the Storthes Hall Mental Hospital, Kirkburton, near Huddersfield, for the West Riding C.C. W. E. H. Burton, architect and engineer, Mental Hospitals Board Offices, Wakefield.

APRIL 8.—**Leamington Spa.**—COTTAGES.—Sixty cottages, for the T.C. J. J. Kennan, Borough Engineer. Deposit £2 2s.

APRIL 8.—**London.**—ENGINE HOUSE.—At Hanworth-road, Kempton Park, for the M.W.B. H. E. Stilgoe, Chief Engineer, Clerkenwell, E.C.1. Deposit £10.

APRIL 8.—**Okehampton.**—DWELLINGS.—Eight dwellings at Chagford; four dwellings at Inwardleigh, and two dwellings at Beaworthy, for the R.D.C. P. Pearce, Sanitary Inspector, Northtawton.

APRIL 8.—**Rowley Regis.**—ALTERATIONS.—To various schools, for the U.D.C. F. T. Wilson, Secretary to the E.C.

APRIL 8.—**Southport.**—EXCHANGE.—Telephone Exchange at Birkdale, for H.M.O.W. Contracts Branch, H.M. Office of Works, King Charles-street, S.W.1. Deposit £1 1s.

✱APRIL 8.—**Wood Green, London, N.**—Practical Instruction Centres (*a*) at Bounds Green School, (*b*) White Hart-lane School playground, for the Urban District Council. The Architect, Town Hall, Wood Green. Deposit £1 1s.

APRIL 9.—**Easingwold.**—PENS.—New pens, concreting entrance, gangways, pens, &c., for the Auction Mart. J. Francis Todd, Architect and Surveyor.

APRIL 9.—**Llantrisant.**—ROOFING.—Stripping and slating roof of the Parish Church Hall. Thomas & Morgan & Partners, Architects and Surveyors, Pontypridd. Deposit £1 1s.

APRIL 9.—**Rainford.**—HOUSES.—Ten houses fronting Ormskirk-road, opposite the Bridge Inn, for the U.D.C. Surveyor. Deposit £1 1s.

APRIL 9.—**Rainford.**—WALL.—Retaining wall at Pasture-lane, for the U.D.C. Surveyor.

APRIL 9.—**Wallington (Surrey).**—TELEPHONE EXCHANGE.—Erection of, for the Commissioners H.M. Office of Works (Contracts Branch), King Charles-street, S.W.1. Deposit, £1 1s.

APRIL 10.—**Cudworth.**—HOUSES.—Eighteen houses of the Sidcop housing site, for the U.D.C. Surveyor.

APRIL 10.—**Settle.**—HOUSES.—For trades in connection with the erection of 12 houses at Hellifield, for the R.D.C. T. A. Foxcroft, Surveyor to the Council.

APRIL 11.—**Buckingham.**—HOUSES.—Thirteen houses at Bourtonville, for the Corporation. G. Belson Chilvers, Architect and Surveyor.

APRIL 11.—**Rosehearty.**—EXTENSION.—To the Fishermen's Hall. J. Summers & Co.

APRIL 13.—**Derbyshire.**—ALTERATIONS.—For alterations and additions at the Beighton Council Schoolhouse. G. H. Widdows, Architect to the Committee, County Offices, St. Mary's-gate, Derby. Deposit £1 1s.

APRIL 13.—**Dublin.**—HOUSES.—Erection of 216, in two sections of 108, for the Borough Commissioners. City Treasurer, Dublin. Deposit £2.

APRIL 13.—**Glamorgan.**—ALTERATIONS.—To Cowbridge Grammar School, for the C.C. T. Mansel Franklen, Secretary to the Education Committee, Glamorgan County Hall, Cardiff.

APRIL 13.—**Grantham.**—PUBLIC LIBRARY AND MUSEUM.—Erection of a new Public Library and Museum for the Borough Council of Grantham. Mr. Gilbert A. Ballard, Borough Surveyor, Guildhall, Grantham. Deposit £5 5s.

APRIL 14.—**Castleford.**—EXTENSIONS.—For a new boys' department at Temple-street Council School, for the West Riding E.C. Education Department, County Hall, Wakefield.

APRIL 14.—**Charleville.**—REPAIRS.—To cottages in Charleville R.D. Scheme No. 11. Plans and specifications prepared by the Engineer, Sailors' and Soldiers' Department, Colonial Office (Irish Branch) 30, Lower Fitzwilliam-street, Dublin. Deposit £1 1s.

APRIL 14.—**London.**—BUILDING.—New cloak rooms and assembly room, extension to public baths, for the Acton B.C. Wm. Hodson, Town Clerk.

APRIL 14.—**Manchester.**—BUILDING.—Excavation, brickwork, masonry, concrete work, and other trades necessary for the erection of basement and sub-basement at the Masonic Temple, for the East Lancashire Masonic Benevolent Institution. R. Verney Clayton, Secretary, 2, Cooper-street. Deposit £5.

APRIL 14.—**Plymouth.**—CONVERTING.—Converting Prince Rock Police Station into flats, for the C.B. J. Wibberley, Borough Engineer and Surveyor.

✱APRIL 14.—**Willesden, London, N.W.6.**—ELECTRICAL TRANSFORMER HOUSES.—Electrical transformer houses at Oxgate-lane, Dollis Hill, and Church Hill-lane-road, for the District Council. Engineer, Town Hall, Dyne-road, Kilburn, N.W.6.

APRIL 15.—**Brighton.**—RESERVOIR.—Reinforced concrete service reservoir in Ditchling-road, for the C.B. A. B. Cathcart, Waterworks Engineer, 12, Bond-street. Deposit £2 2s.

APRIL 15.—**Brighton.**—ROOF.—Reinforced concrete roof over the receptacle at the Shoreham pumping station in Steyning-road, Old Shoreham, for the C.B. A. B. Cathcart, Waterworks Engineer, 12, Bond-street. Deposit £2 2s.

APRIL 15.—**Brighton.**—Telephone Exchange at Preston, for H.M.O.W. Contracts Branch, King Charles-street, London, S.W.1. Deposit £1 1s.

✱APRIL 15.—**Coulsdon.**—Erection of 96 cottages for U.D.C. R. Chart, Surveyor, Council Offices, Purley. Deposit £5.

APRIL 15.—**Glasgow.**—TRADES.—(1) The execution of jobbing mason work, and (2) plumber and gasfitter work, for the T.C. J. G. Ewan, Manager, 22, King-street.

APRIL 15.—**Hatfield.**—HOUSES.—Twelve houses at Little Heath, for the R.D.C. Crickmer & Foxley, architects, 1, Lincoln's Inn Fields. Deposit £2 2s.

APRIL 15.—**Hatfield.**—HOUSES.—Eight houses at Northaw, for the R.D.C. Crickmer & Foxley, architects, 1, Lincoln's Inn Fields, W.C.2. Deposit £2 2s.

APRIL 15.—**Near Sheffield.**—PAINTING.—Outside painting of the females' detached block, dining hall, and laundry residence at the Wadsley Mental Hospital, for the West Riding C.C. W. E. H. Burton, architect and engineer, West Riding Mental Hospitals Board Office, Wakefield.

APRIL 15.—**Oswestry.**—RECONSTRUCTION.—Of the laundry and the hot-water heating and domestic apparatus, for the B.G. G. J. Gibbs, Engineer, Lune-street, Preston, Lancs. Deposit £5.

APRIL 15.—**Pontardawe.**—HOUSES.—Ten houses at the Ystalyfera site, and for the completion of the road, for the R.D.C. E. D. Jones, Architect to the Council, Council Offices. Deposit £2 2s.

APRIL 15.—**Preston.**—EXTENSIONS.—Additional block at the Chestnuts Sanatorium, Ribbleton, for the C.B. Borough Surveyor.

April 15.—**Trowbridge.**—Building.—New police station and married quarters, for the Wilts C.C. T. Walker, F.R.I.B.A., County Architect, County Architect's Department, Trowbridge. Deposit £2 2s.

April 16.—**Croydon.**—Houses.—112 houses on the Waddon estate, for the C.B. Borough Engineer. Deposit £3 3s.

April 16.—**Durham.**—Painting.—Painting the following County Police Stations and houses: Bishop Auckland, Stanhope, Willington, Witton Park, Wolsingham, Darlington, Spennymoor, Blaydon, Dunston, Jarrow, Hebburn, Wingate, 7A, South-street, Spennymoor, 16, Boyd-street, Durham, 5, Laburnum-avenue, Durham, Oakley House, Paragon-street, Stanhope, 10, Wharf-street, Stockton, and 52, Tarring-street, Stockton, for the C.C. Wm. J. Merrett, County Surveyor and Architect, Surveyor's Office, 43, Old Elvet, Durham.

April 16.—**Oldham.**—Post Office and Telephone Exchange at Shaw, for H.M.O.W. Contracts Branch, King Charles-street, London, S.W.1. Deposit £1 1s.

April 16.—**Pladdy Lug.**—Beacon.—Beacon on the Pladdy Lug, at the entrance to Strangford Lough, Portaferry, co. Down, for the Commissioners of Irish Lights. J. B. Phelps, Secretary, Irish Lights Office, Dublin. Deposit £1.

April 17.—**Ashton-under-Lyne.**—School.—At Ashton-under-Lyne, near Manchester, for the Lancashire E.C. H. Littler, County Architect, 16, Ribbledale-place, Preston. Deposit £2 2s.

April 17.—**Birmingham.**—Centres.—Special subjects centres at Nansen-road schools, Saltley, for the E.C. W. H. Ashford, Architect, 32, Paradise-street.

April 17.—**London, S.E.22.**—Cleaning, painting and repairs at the Dulwich Liberal and Radical Club. Secretary, 108 and 110, Lordship-lane, S.E.22.

April 17.—**Surrey.**—Cottages.—Eight at Brookwood and six at Netherne, for the County of Surrey Asylums Committee. F. J. Hodgson, 36, High-street, Guildford. Deposit £1 1s.

April 18.—**Edinburgh.**—Building.—Laundry engineering work, also plaster and concrete works, for the T.C. J. A. Williamson, A.R.I.B.A., City Architect.

April 18.—**Manchester.**—Trades.—Works required in the erection of the new Municipal School in Mount-road, Gorton, and the School Clinic in Cheetham Hill-road, Manchester, for the E.C. Education Offices, Deansgate. Deposit £2 2s.

April 18.—**Methley.**—Houses.—Thirty-two semi-parlour type houses in the Mickletown area, for the U.D.C. T. Thompson, architect, Red House.

April 18.—**Sunderland.**—Houses.—178 houses, for B.C. Borough Engineer, Town Hall, Sunderland. Deposit £2 2s.

April 20.—**Bebington and Bromborough.**—Houses.—Thirty houses at Bebington and 30 houses at Bromborough, for the U.D.C. Surveyor, Council Offices, Bebington.

April 20.—**Chislehurst.**—Cottages.—50, for the D.C. Crickmer & Foxley, architects, 1, Lincoln's Inn Fields, London, W.C. Deposit £2 2s.

✱April 20.—**Dublin.**—Houses.—Erection by way of experiment of five-roomed houses, superficial area 844 super ft., for the County Borough Council. City Treasurer's Office. Deposit £2.

✱April 20.—**Gillingham.**—Extension of school for Kent E.C. W. H. Robinson, Room 69, Sessions House, Maidstone. Deposit £2 2s.

✱April 20.—**Greenwich, S.E.10.**—Houses.—Erection of 100 for the Metropolitan Borough Council. Borough Engineer's Department, Town Hall, Greenwich. Deposit £2 2s.

✱April 20.—**London.**—Dwellings.—Two blocks of dwellings on the Tabard-garden estate, Southwark, for the L.C.C. Architect to the Council (Room No. 3), the County Hall, Westminster Bridge, S.E.1. Deposit £2.

April 20.—**Monmouthshire.**—Building.—Public elementary school at The Tranch, near Pontypool, and two cottages on the Rhadyr Farm, Usk, for the E.C. J. Bain, F.R.I.B.A., architect, County Hall, Newport.

✱April 20.—**Pudsey.**—Stormwater tank in mass concrete and brick respectively for the Borough Council. The Clerk, Pudsey.

April 20.—**Wakefield.**—Painting.—External painting at the County Hall, for the West Riding C.C. Architect, County Hall, Wakefield.

April 20.—**Worcester.**—Houses.—Twenty-six pairs of houses in Bromwich-lane, for the Corporation. W. Ransom, City Surveyor.

April 20.—**Ynysybwl.**—Centre.—Manual Instruction Centre and School Clinic at Ynysybwl, for the Mountain Ash E.C. W. H. Williams, Architect, Town Hall. Deposit £2 2s.

April 21.—**Airedale.**—School.—Builder, &c., carpenter and joiner, slater, plumber, plasterer, painter, work, for school at Ferry Fryston, for the West Riding C.C: Education Department, County Hall, Wakefield.

April 21.—**Bentley-with-Arksey.**—School.—Builder, &c., carpenter and joiner, tiler, plumber, plasterer, painter works, &c., for the West Riding C.C. Education Department, County Hall, Wakefield.

✱April 21.—**Croydon, Surrey.**—Convenience for men and women at Portland-road, for the County Borough Council. Borough Engineer, Town Hall, Croydon. Deposit £2 2s.

April 21.—**Farsley.**—Alterations.—To offices at Farsley Wesley-street Council School, for the West Riding C.C. Education Department, County Hall, Wakefield.

April 21.—**Sligo.**—Repairs.—To cottages in the R.D.C. Scheme No. 9, for the R.D.C. Plans and specifications prepared by the Engineer, Sailors' and Soldiers' Department, Colonial Office (Irish Branch), 30, Lower Fitzwilliam-street, Dublin. Deposit £1 1s.

✱April 21.—**Twickenham.**—Telephone Exchange at Twickenham, for the Commissioners of His Majesty's Office of Works. Contracts Branch, King Charles-street, S.W.1. Deposit £1 1s. (Cheques payable to the Commissioners).

April 22.—**Sleaford.**—Houses.—Twenty-eight houses in Drove-lane, for the U.D.C. W. H. Maxey, architect, 43, Eastgate.

April 22.—**Sligo.**—Repairs.—To a cottage under Sligo R.D. Scheme No. 29. Plans and specifications by the Engineer, Sailors' and Soldiers Department, Colonial Office (Irish Branch), 30, Lower Fitzwilliam-street, Dublin. Deposit £1 1s.

✱April 23.—**East Sussex.**—New Secondary School for the East Sussex Education Committee. County Surveyor, County Hall, Lewes. Deposit £3 3s.

✱April 23.—**London, S.W.2.**—Erection of cottages and flats on the Bloomfield Estate, Norwood, for the Lambeth Borough Council. Borough Engineer, Lambeth Town Hall, Brixton Hill, S.W.2. Deposit £3 3s.

✱April 24.—**Great Yarmouth.**—Houses.—One hundred in 13 blocks, for the Town Council. Borough Engineer, Town Hall. Deposit £2 2s.

April 24.—**North Burlingham.**—Cottages.—Two cottages and outbuildings at Green Farm, for the Norfolk C.C. T. G. Ellis, County Land Agent, The Shirehouse, Norwich. Deposit £1 1s.

April 25.—**Aberdare.**—Additions.—To the Gadly Central School, for the E.C. Thomas Roderick & Sons, Architects, Clifton-street. Deposit £2 2s.

April 25.—**Birmingham.**—Depot.—Motor bus depot on a site between Serpentine-road and Lonsdale-road, Harborne, for the T.C. Crouch, Butler & Savage, architects, 67A, New-street. Deposit £2 2s.

April 25.—**Midhurst.**—Additions.—New science block at the Grammar School for the West Sussex C.C. Hadyn P. Roberts, F.R.I.B.A., architect, Westgate, Chichester. Deposit £1 1s.

April 27.—**Durham.**—Addition to School.—New department to accommodate 304 scholars, together with the work in connection with alterations and improvements to the existing premises, for the County Council. Mr. F. Willey, F.R.I.B.A., 34, Old Elvet, Durham.

April 27.—**Silksworth.**—Extensions.—New Department to accommodate 304 scholars, and alterations and improvements to the existing premises, for the Durham C.C. F. Willey, F.R.I.B.A., 34, Old Elvet, Durham.

✱April 29.—**Nuneaton.**—Fifty houses in Tomkinson-road, for the Borough Council. H. N. Jepson, Queen's Buildings, Nuneaton. Deposit £2 2s.

✱May 5.—**Brecon, South Wales.**—New hospital in Cerrigcochion-road, for the County Council. Henry F. W. Harries, County Hall. Deposit £5.

May 11.—**London, E.1.**—Tenement.—Erection of tenement buildings in Carr-street, Limehouse, E.14, for Borough Council of Stepney. Borough Engineer, Municipal Offices, Rayne-street, Old Gravel-lane, E.1. Deposit £2, Treasury Notes.

No Date.—**Buxton.**—Reconstruction.—Reconstruction and alterations to 45, 47, Spring-gardens, for the representatives of the late Dr. R. O. A. Bennett. C. Flint, Architect and Surveyor.

No Date.—**Carlisle (near).**—Building.—New buildings at the Golden Fleece, Rule Holme, and also at the adjoining residence, on the Beanlands Park estate, near Carlisle, for R. G. Graham. T. Taylor Scott, architect, 36, Lowther-street, Carlisle.

✱No Date.—**Dartford.**—New Bakery for the Dartford Industrial Co-operative Society, Ltd. The Secretary, 93, Kent-road, Dartford.

No Date.—**Dublin.**—Schools.—National schools at Blackrock, co. Dublin, for the Rev. J. Canon Waters. J. J. Robinson, architect, 8, Merrion-square. Deposit £2 2s.

No Date.—**Frimley.**—Houses.—Six pairs of semi-detached houses on land opposite "The Miner's Arms," for the U.D.C. W. H. Tucker, architect, "Ayston," Firwood-drive, Camberley. Deposit £1 1s.

No Date.—**Great Ouseburn.**—Cottage.—Cottage, Green Hammerton, for the R.D.C. Gibson & Hill, architects.

No Date.—**Maesteg.**—Electric Light.—At (1) North's Memorial Hall, Maesteg; (2) Cwmdu Institute, Maesteg; and (3) Workmen's Institute, Nantyffyllon, for the North Memorial Hall Committee. Secretary.

No Date.—**Melmerby.**—Chapel.—Wesleyan Chapel at Melmerby, near Ripon. T. Stokes, architect, Thirsk.

No Date.—**Peebles.**—Housing.—For the Venlaw housing scheme, for the T.C. J. W. Buchan, Town Clerk.

No Date.—**Pontefract.**—Conversion.—House into shops, Town End, Pontefract, for B. T. Wales. Hustler & Taylor, architects and surveyors, 25, Ropergate.

No Date.—**Towyn.**—Additions.—To the County School, for the School Governors. A. M. Howard-Jones, chartered architect, Plas Ynys.

## MATERIALS, etc.

April 4.—**Bradfield.**—Materials.—Granite and limestone macadam, limestone block, granite and limestone chippings, for the R.D.C. C. Ford, Highways Surveyor, Station-road, Theale, Berks.

April 4.—**Crompton.**—Materials.—Bricks, flags, kerb and edgings, granite and limestone macadam, grit setts and grit chippings, for the U.D.C. F. F. Gartside, Clerk to the Council.

April 4.—**Dorking.**—Materials.—Slag and granite or basalt chippings, for the U.D.C. S. S. Gettings, Surveyor.

April 4.—**Oakham.**—Materials.—3,000 tons broken granite, 3,000 tons broken furnace slag, 1,000 tons screened gravel, for the R.D.C. F. W. Nichols, Surveyor.

April 6.—**Dundee.**—Pipes.—2,000 4 in. internal diameter cast-iron pipes, for the Water Commissioners. G. Baxter, Engineer and Manager.

April 6.—**Glyncorrwg.**—Pipes.—72 tons of 6 in. cast-iron spigot and socket pipes, and 8 tons of 4 in. and 1 ton of 3 in. C.I.S. & S. pipes, for the U.D.C. W. P. Jones, engineer and surveyor. Deposit, £1 1s.

April 6.—**Milnrow.**—Materials.—Granite setts, grit setts, granite macadam, granite and limestone chippings, limestone and lonkey racking cubes, flags and curbs, and sanitary pipes, for the U.D.C. A. S. Whipp, surveyor.

April 6.—**Prescot.**—Materials.—Portland cement, stoneware pipes, gullies, &c., granite setts, broken granite and slag, limestone, York setts, kerbs, channels and flags, clean gravel chippings, and sand, artificial stone kerbs and flags, hardcore and concrete stone, for the U.D.C. F. A. Gregson, Engineer and Surveyor, 2, West-street.

April 7.—**Sittingbourne.**—Granite.—200 tons of ¾ in. granite chippings, for the U.D.C. M. W. Lashmar, surveyor.

April 8.—**Bristol.**—Materials.—Portland cement, iron castings, wrought iron and steel, paints, oils, and colours, &c., for the Port of Bristol. T. A. Peace, Engineer, Chief Engineer's Office, Avonmouth Dock.

April 9.—**Chelmsford.**—Granite.—Broken Guernsey granite, for the C.B. E. J. Miles, Borough Engineer and Surveyor.

April 11.—**Glasgow.**—Materials.—Brick work, joiner work, painter work, paving and drainage works, pavior work (streets and courts), pavior work (public streets), plaster work, plumber and gasfitting works, ashlar, bricks, brushes, granite paving setts, granite channel stones, wheelers and kerbstones, lime and cement, paints, &c., whin paving setts, whin kerbstones, for the T.C. J. Lindsay, Town Clerk, City Chambers.

April 11.—**Pontypridd.**—Steel.—1,200 ft. of lap welded mild steel tubes, 12 in. in diameter, or, alternatively, the same length of 10 in. tubes, for the Pontypridd and Rhondda Joint Water Board. Mr. W. T. Coates, Waterworks Engineer.

April 15.—**Ely.**—Materials.—4,780 tons of broken granite and chippings, 630 tons of flints, gravel and sand, 1,080 tons of slag, and 180 tons of Tarmac, for the R.D.C. E. Spencer, District Surveyor.

April 15.—**Rawtenstall.**—Materials.—Materials for sewering and paving, &c., of St. John's-street, Waterfoot, for the C.B. Borough Surveyor's Office. Deposit £1.

April 16.—**Bilston.**—Pipes.—1,400 tons of cast-iron pipes and specials of 16 in., 12 in., 6 in., 5 in., and 4 in. diameters, for the U.D.C. H. Lapworth, 15, Victoria-street, Westminster, S.W.1. Deposit £2.

April 17.—**London.**—Steelwork.—Steelwork for bridges, for the South Indian Railway Co. A. Muirhead, Managing Director, 91, Petty France, S.W.1.

April 18.—**Manchester.**—Terra Cotta.—Red terra cotta for the Municipal School in Mount-road, Gorton, for the E.C. P. M. Heath, Town Clerk. Deposit £1 1s.

April 18.—**Nelson.**—Materials.—Broken granite and limestone, flags, setts, kerbs, tarred and dried slag, cement, and lime, &c., for the C.B. W. Shackleton, Borough Engineer and Surveyor.

April 20.—**Baildon.**—Bricks.—Road materials and bricks, for the U.D.C. R. Howard Moore, clerk.

April 25.—**Glasgow.**—Materials.—Bricks, lime and cement, electric fittings, and oils, &c., for the P.C. A. Reynard, Inspector, 266, George-street.

May 15.—**Siam.**—Steel.—Superstructure of steel railway bridges, for the Royal State Railways. Commissioner-General, Bangkok.

May 20.—**Madras.**—Pipes.—Stoneware pipes and specials, varying from 4 in. to 15 in. in diameter, and aggregating a total length of about 300,000 ft., for the T.C. J. Mansergh & Sons, Agents to the Corporation of Madras, India, 5, Victoria-street, Westminster, London, S.W.1.

June 3.—**South Africa.**—Pipes.—Approximately 33 miles 33 in. diameter steel pipes and specials, cement lined, for the Cape Town T.C. J. R. Finch, Town Clerk, City Hall. Deposit £5 5s.

## ENGINEERING, IRON AND STEEL.

✱April 6.—**Birmingham.**—Constructional steelwork in connection with the motor bus depot, for the Tramways Committee of the City. General Manager, Council House, Congreve-street. Deposit £2 2s.

April 6.—**Lytham St. Annes.**—Reconstruction.—Reconstruction of Liggard Brook Bridge, for the Lancashire C.C. W. H. Schofield, County Surveyor and Bridgemaster.

April 6.—**Newcastle-upon-Tyne.**—Jetty.—Timber jetty and steel sheet piling at the Engineering Yard, Howdon-on-Tyne, for the Tyne Improvement Commission. Secretary. Deposit £2 2s.

April 7.—**Dublin.**—Reconstruction.—Of Annesley Bridge, for the C.B. J. J. Murphy, Town Clerk. Deposit £1 1s.

April 10.—**Bratton Clovelly.**—Bridge.—Concrete and steel bridge over the River at Reed Water, for the Okehampton R.D.C. G. A. Friend, surveyor, Northblew.

April 11.—**Jedburgh.**—Bridges.—Reinforced concrete bridges over the River Jed, for the D.C. J. & A. Leslie & Reid, engineers, 72A, George-street, Edinburgh. Deposit £5.

April 15.—**London.**—Girder.—Girder bridge work, for the Director General of the India Store Department, 15, Belvedere-road, S.E.1.

April 16.—**Portsmouth.**—Bridge.—Concrete bridge at Portsbridge, for the C.B. A. W. Ward, Borough Engineer. Deposit £5

April 17.—**Brighton.**—Reconstruction.—Landing stage, and other work, for the West Pier Co. Noel Ridley, Engineer, Standard House, 133, Cardigan-road, Leeds.

April 18.—**Dumfries and Maxwelltown.**—Bridge.—Construction of a masonry and concrete arched bridge, across the River Nith, for the Joint Bridge Committee. J. Boyd Brodie, Chartered Civil Engineer, 141, West George-street, Glasgow. Deposit £5.

April 20.—**Pudsey.**—Tank.—Stormwater tank and other works at the Sewage Works, Houghside, Pudsey, for the C.B. A. E. Evans, Town Clerk.

April 25.—**Birmingh m.**—Steelwork.—Constructional steelwork in connection with the new motor bus depot on a site between Serpentine-road and Lonsdale-road, Harborne, for the T.C. Crouch, Butler & Savage, architects, 67A, New-street. Deposit £2 2s.

April 30.—**Drip.**—Bridge.—Bridge over the River Forth, at Drip, Stirling, for the Stirling and Perth C.C. D. R. Cox, Road Surveyor, Stirling.

## ROAD, SEWERAGE, AND WATER WORKS.

APRIL 4.—**Brierley Hill.**—PAVING.—Laying 6,200 sup. yds. sett paving, together with reinforced concrete foundations, kerbing, &c., for the U.D.C. J. Yorke, Surveyor. Deposit £5 5s.

APRIL 6.—**Birmingham.**—WIDENING.—At the junction of Solihull-lane and Stratford-road, Hall Green, for the T.C. H. H. Humphries, City Engineer and Surveyor. Deposit £2.

APRIL 6.—**Edinburgh.**—FENCING.—Eighty-six yards of wrought-iron fence, 314 yards of space and pale fence, and 128 yards of post and wire fence, for the T.C. Burgh Engineer.

APRIL 6.—**Finchley.**—ROAD.—For construction of a section of the North Circular road, approximately 1.63 miles, commencing at Regent's Park-road and terminating at the Great North-road. A. Dryland, County Engineer and Surveyor, Guildhall, Westminster, S.W.1.

APRIL 6.—**Manchester.**—ROADS.—Sewering, draining, paving, Planet-street, Newton Heath, from Lowe-street to Albion-street; and sewering, draining, paving a street from Dyson-street to Lowe-street. for the T.C. Paving, &c., Department, District Surveyor's Office. Deposit £1 1s.

APRIL 6.—**Manchester.**—ROADS.—Surfacing with 2 in. granited rock asphalt, on existing concrete, Victoria-avenue, Blackley, for the T.C. City Engineer. Deposit £1 1s.

APRIL 6.—**South Westmorland.**—SEWERS.—Construction of stoneware and concrete sewers, manholes, &c., together with tidal storage tanks at Arnside, for the R.D.C. H. B. Ward, Chartered Civil Engineer. Commerce Chambers, 15, Lord-street, Liverpool, Deposit £5 5s.

APRIL 7.—**Dunfermline.**—ROADS.—For (*a*) reinforced concrete foundation to Limekilns-road and Grieve-street; (*b*) reinforced concrete surface to Limekilns-road; (*c*) two coats granited mastic asphalt to Admiralty-road East and Queensferry-road, for the T.C. R. Muir Morton, Burgh Engineer.

APRIL 7.—**Glasgow.**—ROADS.—Roads and sewers at Norham-street, Shawlands, for the Corporation. J. Lindsay, Town Clerk.

APRIL 8.—**Birmingham.**—SEWERS.—1,137 lin. yds. of stoneware pipe sewers, together with manholes, ventilating column and other incidental works, in Leach Green-lane and Each Way-lane, for the T.C. H. H. Humphries, City Engineer and Surveyor. Deposit £2.

APRIL 8.—**Erith.**—SEWERS.—560 lineal yds. of 9 in. stoneware pipe foul sewers, and about 1,100 lineal yds. of 9 in. and 12 in. stoneware pipe surface water sewers, together with manholes, ventilation shafts, and other contingent works, for the U.D.C. H. Hind, engineer and surveyor. Deposit £1.

APRIL 8.—**Glamorgan.**—WIDENING.—Cardiff and Pontypridd main road between Church-road and the Vicarage, Whitchurch, and Caerphilly and Llanbradach main road at Pontygwindy, for the C.C. W. E. R. Allen, Deputy Clerk of the County Council, Glamorgan County Hall, Cardiff.

APRIL 8.—**Merton and Morden.**—MAKING-UP.—Of Dorset-road, Merton, for the U.D.C. G. Jerram, surveyor. Deposit £2.

APRIL 8.—**Wharfedale.**—SEWERS.—Construction of about 770 lineal yds. of pipe sewers, 12 in. and 9 in. diameter, together with manholes, for the R.D.C. E. J. Silcock, engineer, 10, Park-row, Leeds. Deposit £5.

APRIL 9.—**Hull.**—CONVERSION.—Privy conversions, also a number of reconstruction of main drains, for the Corporation. City Architect's Office, Guildhall.

APRIL 9.—**Tavistock.**—DRAINAGE.—Certain works necessary to complete the drainage scheme at Whitchurch, for the R.D.C. T. H. Harris, Sanitary Inspector.

APRIL 10.—**Lanark (Lower Ward).**—RECONSTRUCTION.—Reconstruction and extension of the sewage works at Westthorn, near Tollcross, including the construction of aeration and sedimentation tanks, inlet and outlet channels, the erection of a compressor house, and other relative work, for the D.C. Warren & Stuart, engineers, 94, Hope-street, Glasgow. Deposit £2 2s.

APRIL 11.—**Ayr.**—RECONSTRUCTION.—Reconstruction and widening of Somerset-road bridge and the roadwork, retaining walls, and other work for the raising of Approach-roads of M'Calls-avenue, Somerset-road, and West Sanquhar-road, for the T.C. J. Young, Burgh Engineer. Deposit £2 2s.

APRIL 11.—**Lexden and Winstree.**—MAKING-UP.—Of Seaview-avenue, West Mersea, for the R.D.C. Surveyor of Highways, Victoria Chambers, Colchester.

APRIL 11.—**Wallasey.**—FENCING.—Wood posts and galvanised wire for about 230 lineal yards of fencing, for the C.B. G. Livsey, Town Clerk.

APRIL 14.—**London.**—SEWER.—On the White Hart-lane estate, Tottenham, for the L.C.C. Chief Engineer and Administrator of Housing Development Schemes, 3, Warwick House-street, Cockspur-street, Charing Cross, S.W.1. Deposit £2.

APRIL 15.—**Leeds.**—PAVING.—Paving and concreting portions of Carlton-street, Elland-road, Meadow-road, Cherry-row, for the T.C. Highways and Permanent Way Engineer, 1, Swinegate.

APRIL 15.—**Plymouth.**—DRAINAGE.—Construction of the common drain, Wadham-terrace, Ford, for the C.B. J. Wibberley, Borough Engineer, Municipal Offices.

APRIL 16.—**Southend-on-Sea.**—MAKING-UP.—Kensington-road, Recreation-avenue, Vernon-road, and sewering Gordon-road for the C.B. R. H. Dyer, Borough Engineer and Surveyor. Deposit £2.

APRIL 18.—**Hatfield.**—SEWERS.—Laying about 840 yds. of 6 in. stoneware sewer, with manholes, in St. Albans-road, for the R.D.C. G. Bertram Kershaw, Chartered Civil Engineer, 9, Victoria-street, Westminster, S.W. Deposit £2 2s.

APRIL 18.—**South Shields.**—STREETS.—Improvement works in St. Vincent-street and Alverthorpe-street, for the C.B. S. G. Stanton, Borough Engineer.

APRIL 20.—**Baildon.**—MAINS.—Excavation, laying and jointing of 2,620 lineal yds. of 7 in. and 6 in. steel and cast-iron water main, together with the supplying of the necessary valves and special materials, for the High Level Main from Birch Close-lane, Bingley, to Northgate, for the U.D.C. R. Howard Moore, Clerk.

APRIL 21.—**London.**—RECONSTRUCTION.—Of Chestnut-road, for the Tottenham D.C. R. C. Graves, Clerk of the Council. Deposit £1 1s.

APRIL 22.—**Bournemouth.**—MAKING-UP.—Coronation-avenue, for the C.B. F. P. Dolamore, Borough Engineer. Deposit £1 1s

NO DATE.—**Saltcoats.**—PAVING.—2,500 super yards of granolithic paving of new promenade, for the T.C. D. H. Shaw, Burgh Surveyor.

## Competitions.

(*See Competition News, page* 518.)

## Auction Sales, Tenders, etc.

APRIL 4.—**Great Bookham, Surrey.**—C. E. Clark, Eastwick-buildings, Lower-road, timbers, bricks, principals and builders' effects. Auctioneers. Beddington House, near Croydon.

APRIL 6.—**Horley, Surrey.**—C. E. Clark, Market Field, prime new timbers and builders' effects. Auctioneers, Beddington House, near Croydon.

APRIL 7.—**London, E.C.4.**—Messrs. Fairweather & Turner will sell, by order of the Unit Construction Co., Ltd., at the Mart, 155, Queen Victoria-street, E.C.4, at a low reserve, The North Essex Portland Cement Works, Saffron Walden, Essex, close to railway station (N.E.R.). Auctioneers, 5, Lower Grosvenor-place, Victoria, S.W.1.

✱APRIL 7.—**Wembley.**—Joseph Hibbard & Sons, by Order of the Government of Burma, Wembley Exhibition, the contents of the Burma Pavilion. Auctioneers, 15, Newington Green, Islington, London, N.16.

✱APRIL 16.—**Epsom.**—Veryard & Yates, by order of National Council Y.M.C.A., huts and building material, Queen Mary's Convalescent Centre, Woodcote Park. Auctioneers, 365, Norwood-road, S.E.27.

✱APRIL 20.—**Streatham Hill.**—Veryard & Yates, useful building materials, 64, Leigham Court-road. Auctioneers, 365, Norwood-road, S.E.27.

APRIL 21.—**Kensington, W.**—Messrs. Drivers, Jonas & Co. will sell, at the London Auction Mart, freehold ground rents, freehold property at Kensington. Auctioneers, 7, Charles-street, St. James's-square, S.W.1.

✱APRIL 21.—**London, S.W.1.**—Hampton & Sons, freehold building land at Woldingham, Surrey, of over 35 acres. Auctioneers, 20, St. James's-square, S.W.1.

✱APRIL 21.—**London, S.W.**—Veryard & Yates, timber and building materials, 255, Clapham-road. Auctioneers, 365, Norwood-road, S.E.27.

APRIL 28 AND FOLLOWING DAYS.—J. T. Skelding & Co., *re* P. & W. Anderson, Ltd. (in liquidation). By order of Receiver for the Debenture Holders, at Yeoman-street, plant yard off Plough-road, Deptford, S.E. Contractor's plant and machinery. Auctioneers, 48, Gresham-street, Guildhall, E.C.2.

MAY 2.—**Hertford.**—Brand & Oram, Hertford, and Ralph Pay & Taylor, 3, Mount-street, London, W.1, auctioneers, at the Dimsdale Arms Hotel, Hertford, freehold building land.

✱MAY 12.—**Eltham, Kent.**—Hampton & Sons, by order of Executors, residential property, &c., "Conduit Lodge," in all over 5¼ acres. Auctioneers 20, St. James'-square, S.W.1.

✱MAY 21.—**London, W.1.**—Knight, Frank & Rutley, freehold residence, "The Deanes," Althorpe-road, St. Albans. Auctioneers, 20, Hanover-square, London, W.1.

## Public Appointments.

APRIL 6.—**Breconshire.**—COUNTY SURVEYOR AND ARCHITECT.—Required by the County Council. Henry F. W. Harries, Clerk, Brecon.

APRIL 6.—**Ilkeston.**—TEMPORARY ARCHITECTURAL ASSISTANT.—Required by the Corporation. The Clerk, Town Hall, Ilkeston.

APRIL 7.—**Singapore.**—Assistant Architect. Peirce & Williams, 180, Hope-street, Glasgow.

APRIL 9.—**Gillingham, Kent.**—Temporary Town Planning Assistant required by the Borough Council. Borough Engineer and Surveyor, Council Offices, Gillingham, Kent.

✱APRIL 16.—**London, W.C.2.**—Trench Clerk and Assistant in the Works Department required by the Westminster City Council. Town Clerk, Westminster City Hall, Charing Cross-road, W.C.2.

✱APRIL 18.—**Staffordshire.**—Senior Draughtsman required by the Education Committee. Architect, County Education Offices, Stafford.

✱NO DATE.—**Croydon, Surrey.**—Joiner required at the Croydon Mental Hospital, Upper Warlingham, Surrey. Apply at once to Medical Superintendent.

✱NO DATE.—**Falkland Islands.**—Carpenter required by the Government of Falkland Islands. Apply at once, Crown Agents for the Colonies, 4, Millbank, London, S.W.1, quoting M/13428.

✱NO DATE.—**London, S.E.1.**—Architectural Assistants for temporary engagements required by the L.C.C. Architect, The County Hall, Westminster Bridge, S.E.1.

✱NO DATE.—**London, S.W.'.**—Officers required in the prisons and Borstal institutions. Secretary, Prison Commission, Home Office, S.W.1.

✱NO DATE.—**Newcastle-upon-Tyne.**—Clerk of Works required in the Department of the Housing Architect. Housing Architect, 18, Cloth Market, Newcastle-upon-Tyne.

### Appreciations of the Crafts.

The Welsh Department of the Board of Education has made arrangements for a short introductory course in "The Appreciation of the Crafts" to be held in London at the Royal College of Art, South Kensington, London, S.W.7, from July 25 to August 8. The annual exhibition of the work of the students of the Royal College of Art will be held concurrently with the course. The course, which will have as its main object the demonstration of the bearing of good craftsmanship on daily life, is intended to give teachers an insight into the aims and methods of workers in woodwork, pottery, embroidery, and lettering. In all branches of the Course it will be the aim of the instructors to emphasise what it is that differentiates insincere and pretentious workmanship from work which derives its beauty from its sincerity and from the adaptation of the material to its fit purpose.

### St. Dunstan's.

We had pleasure last year in giving publicity to the fact that St. Dunstan's had a number of blinded soldiers in training as telephone operators. They inform us htat all the men in training last year were suitably placed, and they now have several men ready for similar positions. Not a few employers state that their board has never been so well and efficiently managed as by their blinded soldier operator. This may be because the freedom from outward distraction—a natural accompaniment of blindness—enables the blind operator to concentrate on his work to a much higher degree than is possible for a sighted operator, and thus he can maintain an excellent service. The authorities at St. Dunstan's Headquarters (Inner Circle, Regent's Park, London, N.W.1), will gladly supply full particulars.

### Developments in Quarrying.

We understand that in order to deal more efficiently with the increasing demands for their asphaltic limestone surfacing material for footways, playgrounds, &c., Messrs. William Shepherd & Sons, Ltd., Milkstone, Rochdale, have now acquired control of the Hartington Quarries, Ltd., an established Derbyshire concern possessing ample supplies of stone, up-to-date crushing and tarring plants, equipped with its own sidings and of easy access by both rail and road. Asphaltic limestone as manufactured at Hartington, is to be identical in specification and quality with the asphaltic limestone made previously at the other plants of this well-known firm.

### New Southend Road.

The arterial road schemes known as the Eastern-avenue and the London-Southend-road recently opened by H.R.H. Prince Henry, K.G., were commenced in the latter part of 1921. The two new roads together form a continuous route of twenty-nine miles from Southend to Wanstead, whence a further extension into the heart of London is contemplated when conditions permit. The road generally is laid out with a width between fences of 100 ft., to provide for two 24 ft. carriage-ways divided by a 20 ft. central space and two 8 ft. verges, with two 8 ft. footways next to the fences. Large quantities of fencing were naturally required for the new road, and no less than 13 miles of this fencing, as well as gates, &c., were supplied and erected by the Bletchley firm of Messrs. Rowland Bros., who specialise in large fencing contracts, having completed hundreds of miles for prominent contractors. For the London-Southend road, Messrs. Rowland Bros. supplied to the contractors, Messrs. Muirhead, Macdonald, Wilson & Co., Ltd., no less than 8¾ miles of concrete post and 7-wire fencing, and 4¼ miles of oak post and rail fencing. They also supplied 115 gates, constructed of oak and larch, and 49 stiles.

### Architectural Exhibition.

The Eastern Branch members of the South Wales Institute of Architects recently gave an exhibition of designs and drawings prepared by them at the Newport (Mon) Y.M.C.A. buildings.

# PROPOSED NEW BUILDINGS & OTHER WORKS*

In these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced. Abbreviations: T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; B.G. for Board of Guardians; B.C. for Borough Council; P.C. for Parish Council; M.H. for Ministry of Health; M.T for Ministry of Transport; C.B. for County Borough; B.E. for Board of Education; M.A.B. for Metropolitan Asylums Board; and M.W.B. for Metropolitan Water Board.

ABERDEEN.—The T.C. passed plans: Twelve houses, at a cost of £11,950; installation of spray baths in Hanover-street School, at £3,500; and alterations and additions to buildings at Oakbank Industrial School, at £2,000.

ACCRINGTON.—The T.C. has decided to purchase the house known as Rough Lee for £2,000, for use as a Maternity Hospital for the borough. Plans have been prepared by the Surveyor showing accommodation for 10 beds, the estimated cost being £3,000.

ASHTON-UNDER-LYNE.—Sanction of the M.H. has been obtained by the T.C. to the borrowing of £3,500 for the alterations to the Trafalgar-square School.

ASPULL.—Subject to the approval of the D.C., the War Memorial Committee has selected a triangular plot of land near the Finger Post as the site for the War Memorial.

AYR.—The T.C. agreed to the erection of 102 houses. The tenders, amounting to £436 per house, were accepted, subject to the approval of the B.H.

BARKING TOWN.—A site is being secured for a maternity centre.—Mr. Chas. Gray has prepared a scheme for 56 houses in Netherlands-gardens.

BARROW-ON-SOAR.—The R.D.C. have completed at the repeated applications of Mountsorrel P.C., negotiations for the purchase of an acre of building land in Boundary-road, South End. A commencement is to be made of 14 workmen's houses, at a cost of £6,765.

BATLEY.—Plans for a proposed new elementary school for boys at Healey have been approved by the B.E.—The E.C. has approved of plans for an open-air school at Healey-lane. Accommodation will be provided for 255 girls. The estimated cost is £13,926. Messrs. W. Hanstock & Son, of Batley, are the architects.

BELFAST.—The E.C. has approved of plans prepared by the Education Architect, W. G. Davies, A.R.I.B.A., for the erection of schools at Everton and Ormeau Park, accommodating 750 pupils each, and extensions to Rosetta School to accommodate 670 pupils.

BILLINGHAM.—The U.D.C. has received sanction from the M.H. for a loan of £15,193 for building in connection with the erection of 30 houses at Chilton-lane.

BIRKENHEAD.—The T.C. are applying for sanction for a loan of £1,580 for the provision of conveniences and bowl houses at the Park bowling greens. A motor ambulance garage is to be erected at the hospital, at a cost of £1,645. Premises in Grange-road West are being purchased for £5,000 for an electricity showroom, and the cost of adaptation and equipment is estimated at £1,000. A Baptistry is to be erected in connection with St. Lawrence Church, Beckwith-street. A further 200 houses are to be subsidised. The T.C. are negotiating with the Mersey Docks & Harbour Board for the acquisition of Queen's Buildings for part demolition and part reconditioning for housing purposes. The B.S. has been instructed to prepare plans for tenements and cottages for poor people on land in the vicinity of Ilchester-road. Hamilton Estates, Ltd., propose the erection of 40 houses in Iris-avenue and Snowdrop-avenue, and the Dawson Birkenhead Houses, Ltd., are to erect 124 houses in the vicinity of Price-street. The E.C. are to provide additional accommodation at Laird-street school at a cost of £700.

BLACKBURN.—The foundation work for a Roman Catholic church on a site adjoining the Cemetery is being proceeded with. The building will cost £2,000.

BLACKPOOL.—The Blackpool Golf Club are proposing to spend £1,000 on the enlargement of the club house, &c.—The congregation of the new Independent Methodist Church are erecting a church on a site on Hesketh-road.

BOLTON.—Approval has been given by the M.H. to the erection of 100 steel houses, on a site off Union-road.—The Congregational Union propose to erect a new Sunday School at Deane, to cost about £8,000.—A site has also been obtained on Chorley Old-road for the erection of a Sunday school, to cost £10,000.—The B.E. has approved the scheme for the conversion of the Lostock Industrial School as an open air school, for the E.C.; the estimated cost is £1,175.—The erection of a new elementary school in Devonshire-street is shortly to be undertaken.

BOURNEMOUTH.—The T.C. have received sanction to a loan of £24,560 for the erection of 42 houses on the Southill estate. A loan of £850 has been sanctioned for alterations to bowling pavilions. Application is being made for sanction to borrow £4,000 for the enlargement of Malmesbury Park School, and £1,800 for enlarging the Stourfield School. The M.H. have sanctioned a loan of £4,400 for the erection of shelters on the Undercliff-drive. The B.S. is to prepare plans for the lay-out of the Charminster-road housing site.

BRAMLEY.—Tenders for the erection of a branch library at Hough-lane have been recommended for acceptance. The estimated cost of the building is £8,512.

BRAMPTON BIERLOW.—A scheme has been prepared for the erection of a new Wesleyan Chapel, at a cost of £3,000.

BRIGG.—The U.D.C. propose erecting 45 houses. They also propose making application for £20,000.

BURY.—The Higher Education Sub-Committee are inviting tenders for the erection at the Secondary School of a brick building, for the purposes of a gymnasium.

CAERPHILLY.—The U.D.C. is to erect 50 bungalows in Lawrence-street.

CASTLEFORD.—The U.D.C. proposes to construct underground conveniences upon a site adjoining Bank-street and Station-road.

CHAPEL-EN-LE-FRITH. — The R.D.C. recommend that arrangements be made to take over the land at Batham Gate as a site for houses in Wormhill Parish; also that a scheme for building four concrete houses at Batham Gate be submitted to the Ministry for specific approval as soon as possible after the site has been secured.

CHEADLE.—Plans have been approved, submitted by the Oil Well Engineering Co., for the construction of a proposed railway crossing in Bird Hall-lane.

CHELMSFORD.—The T.C. are to make application to the M.H. for sanction for the erection of 250 more houses. The T.C. agreed to the erection of a ladies' convenience in Viaduct-road, and the provision of a room for the attendant, at an approximate cost of £350.—The council also approved of an application to the M.H. for building the new Public Health Department at Rainsford House.

CHISLEHURST.—The Right Hon. T. R. Ferens, of Hull, has provided a great part of the cost of a new assembly hall and other extensions at Farrington's Wesleyan Methodist School for girls, equal to £40,000.

CHORLEY.—The L.M.S. have agreed to the plans prepared by the B.S. for widening the railway bridge at Harper's-lane. Messrs. Biram & Fletcher, of St. Helen's, have accepted appointment as architects of the proposed open-air school. The T.C. have approved plans from the managers for the proposed St. Peter's memorial school, and also for the adaptation of the existing school. Plans have been forwarded to the B.E. of a proposed special subjects centre in Duke-street estimated to cost £2,875.

COLNE.—The following plans have been approved: 12 houses, Wordsworth-road, for the Colne and District Co-operative Society.—The Secretary of the P.M.G. states that provision had been made in the estimates for the year 1925-6 for the erection of a new post office at Colne.—The plans and estimates by the B.S. were approved for the construction of a wall at the sewage works, the estimated cost being £1,894.

CORSTORPHINE.—The Cemetery Co., Ltd., are seeking the T.C. approval for a new cemetery on part of the farm of Corstorphine Bank, on the west side of Corstorphine Hill. The ground, which extends to about 32 acres, has already been acquired.

COULSDON.—The U.D.C. are to get tenders for the erection of 96 houses on a site in Chipsted Valley. The Council are asking the Surrey C.C. to provide a secondary school for boys, a technical school and a central school. Plans passed: Forty-two houses, Brighton-road, for Messrs. C. H. Gibsons, Ltd.

CROSSGATES.—The B.E. has approved of plans for a Council school at Crossgates housing estate. Tenders amounting to £25,818 have been recommended for acceptance.

CROYDON.—The M.H. has sanctioned the borrowing of £7,270 and £450 for the Maternity and Child Welfare Centre, St. James'-road. The Mental Committee recommend that plans be prepared for the erection of eight cottages, type "A," and four cottages of the "B" type.—The Borough Engineer has reported that after making certain modifications in the plans, &c. the cost of erection of 34 houses and 28 tenements at Thornton-road would be £31,000. The M.H. are prepared to sanction a loan of £28,100.—Plans passed by the C.B.: A. Duckit, amended plan for 16 houses, Fairlands-avenue; W. G. Ingram, 10 houses Greenlane and 40 houses Florida-road; Truett & Steel, Ltd., six shops and houses Brigstock-road; P. Richardson, house Addiscombe-road and 15 houses Limpsfield-avenue; J. B. & W. B. Hemmings, 12 houses Chartham-road; S. Jefferies, 20 houses, Ross-road; New & Marriage, 18 houses and garages, Beulah-hill.

COVENTRY.—The T.C. recommend that four houses for the Water Department employees be erected in Abbott's-lane, at an estimated cost of £1,785.—A farm house at Pinley Green Farm is to be converted into two houses, at an estimated cost of £655.—The T.C. has agreed to contribute £22,500 for the proposed by-pass road from Whitley to Allesley.—Extensions are to be carried out at Foleshill Gas Works, at an estimated cost of £266,310.

DEWSBURY.—Proposed nurses' home at the Infirmary.

DONAGHADEE.—The U.D.C. has received the sanction of the Ministry of Home Affairs to the borrowing of £500 for the provision of public lavatories, and £700 for the improvement of the swimming pond.

DONCASTER.—The Horne Brewery Co. are to make extensive alterations to the "Little Red Lion" Inn, and propose spending £10,000 on the scheme.

DOVER.—The M.H. are prepared to sanction a loan of £3,500 for the erection of a covered shelter in the Granville-gardens. The E.C. are reconsidering plans for a proposed open-air school. The scheme has been approved by the M.H. with specific approval to the erection of 56 houses.

DUBLIN.—The T.C. has passed plans for 46 houses, for A. Strain.

EAST GRINSTEAD.—The R.D.C. has adopted plans and specifications for the erection of 36 cottages in the Worth parish. The Committee were now about to obtain tenders for these cottages.—The Committee also were endeavouring to obtain land at West Hoathly for the erection of 10 cottages, and also at Asburst Wood for the erection of 24 cottages.

EDINBURGH.—The Dean of Guild Court granted a warrant for the erection of 54 houses at Lochend. The houses are to be erected at Restalrig-road.—Plans passed: Pavilion at Wardie-road and boundary wall and pavilion at St. John's R.C. School, Hamilton-terrace, Portobello; J. Fleck, 16 houses, at Corstorphine Bank-drive, Corstorphine; J. Robb, 18 houses at Relugas-road.

FALKIRK.—The Dean of Guild Court granted Wilson & Tait, architects, to erect two blocks of flatted dwelling houses, at the Nurseries, Kerse-lane, at the estimated cost of £4,500.—Falkirk Entertainers (Ltd.), were given permission to make alterations and additions to the picture house in Bank-street, at an estimated cost of £2,000.

FARNLEY.—A site, known as "The Lawns House Estate," has been acquired by the Leeds E.C. upon which it is proposed to erect an open-air school. Plans are being prepared by Mr. Broadbent.

GELLYGAER.—The U.D.C. is to borrow £8,000 for an electric lighting installation scheme.

GLASGOW.—The Dean of Guild Court passed plans: Corporation Parks Department, bandstand, Bellahouston-park, children's shelter, Rutherglen-road; Corporation Housing Department, bowling club-house, Drumoyne; Girl Guides' Association, hall and alterations, Bank-street, Hillhead.—The Housing Committee are to erect 114 houses on a site in Harley-street and Brand-street. A grant of £1,000 is recommended to the St. Andrew's Ambulance Association, who are raising £30,000 for the erection of new headquarters in North-street.

GLOSSOP.—The T.C. have called for estimates for the construction of conveniences in the parks. A committee are to investigate the practicability of providing hospital accommodation for young children at Partington House.

GRAYS.—An intermediate school is to be established at Gray's Bridge-road, by the Essex E.C.

GUILDFORD.—The Electricity Commissioners have sanctioned a loan of £6,250 for the purchase of land in Woodbridge-road, as a site for the new electricity station.

HARROGATE.—The T.C. propose constructing a bathing pool and erect buildings and execute other works on land known as the Ripon-road Farm.

HASLINGDEN.—The C.C. are to be asked to authorise application to be made to the M.H. for sanction for a loan of £7,675, to cover the cost of the purchase of additional land and of the proposed extensions at the Secondary School.

HEBDEN BRIDGE.—The D.C. has decided to apply to the M.H. to borrow £7,250 for 12 houses at Eaves Bottom.

HESTON AND ISLEWORTH.—The U.D.C. passed plans: Perry Bros., 26 houses, Kingsley-road; Parkwood Development Co., Ltd., 27 houses, North Hyde-lane; Glenwood Building and Construction Co., Ltd., 32 houses, Kingsley-road.

HILLINGDON.—The Middlesex C.C. are acquiring a site for the erection of a Council school.

HORNSEY.—The M.H. has given formal sanction to the borrowing by the T.C. of £2,000 for the purchase of land in Nightingale-lane and Rectory-gardens, for the erection of dwellings.—Plans passed: 19 houses, Cascade-avenue, Muswell Hill, by W. B. Collins; 12 houses, Tregaron-avenue, Crouch Hill, by Chesterton & Sons.

ILFORD.—The U.D.C. passed plans: R. Stroud, 20 houses, Beddington-road; R. Stroud, 26 houses, Wallington-road; P. E. Brand, Ltd., 22 houses, Clifford-gardens, Jerrold-avenue; A. P. Griggs, 92 houses, St. Edmunds-road, St. Helens-road, Beehive-lane, and Cranbrook-rise; Hobbs Bros., 115 houses and 26 garages, Castle View-gardens; J. Winkle, 18 houses, Avenue-gardens, Eastern-avenue.

IPSWICH.—A demonstration pair of steel houses are to be erected.—Application for £7,682 is to be made to the M.H. in respect of an additional 100 houses.

KIDDERMINSTER.—The E.C. are to add class-rooms at the High School at a cost of £850.

KINGSTON.—The B.G.'s extension to the hospital and the erection of a nurses' home at an estimated cost of between £70,000 and £80,000 was the subject of an inquiry by the M.H.

LARG.—The T.C. are to erect a bathing house on the North Foreshore at an estimated cost of £3,400.

LEEDS.—The E.C. decided to purchase the Lowns House estate at Farnley, for use as an open-air school, as a site for a public elementary school to replace the existing schools at Old and New Farnley, and for other educational purposes. The estate is 46 acres.—Application is to be made for a loan of £32,000 for the erection of an elementary school at Crossgates.

LEICESTER.—The E.C. recommend the acquisition of Winthorpe, Westcotes-drive, at the price of £2,100 for extending the boys' hostel.

LIMEHURST.—The D.C. approved plans for the extensions of the United Methodist Church and School in Worthington-street.—The Ashton Co-operative Society are considering a scheme for the erection of subsidy houses in Gorsey-lane.

LIVERPOOL.—The Corporation passed plans: Ten houses, Aigburth-road, 22 houses, Stratford-road, eight houses, Hailsham-road, by R. Owens & Son, for Hugh Jones & Sons; bank, Canning-place, by E. C. Aldridge, for Bank of Liverpool and Martin's, Ltd.; club, Church-alley and School-lane, by Willink & Dod, for the Committee of the Athenæum Club; 20 houses, Mapledale-road, by O. Williams & Sutcliffe, for W. & T. A. Williams; hotel, Allerton-road, by Medcalf & Medcalf, for Threlfall's Brewery Co., Ltd.; 24 flats, Muirhead-avenue, by Morter & Dobie, for the Corporation; 10 houses, Ashdale-road, by O. Williams & Sutcliffe, for Powell & Cowley; 24 flats, Muirhead-avenue, by Quiggin & Gee, for the Corporation; 24 flats, Muirhead-avenue, by R. Owens & Son, for the Corporation; 21 houses, Rosedale-road, by O. Williams & Sutcliffe, for J. Lloyd Jones; six flats each in Aigburth-road, Riverbank-road, and the proposed new roads, by A. E. Shennan, for D. C. Williams.

*See also our List of Contracts, Competitions, etc.

LLANELLY.—The B.C. has been recommended to proceed with the Parc Howard lake construction scheme, to cost, including boathouse provision, £10,500, and application has been made for grants from the M.H. and G.W.R.

LONDON (CAMBERWELL).—The B.C. recommend the Borough Engineer to carry out the necessary work for the erection of a new potting shed and mess room at the Cemetery, at an approximate cost of £200. County of London Electric Supply Co., Ltd., proposed transformer sub-station at No. 124, Hill-street and Shards-mews.

LONDON (PADDINGTON).—The B.C. are acquiring the vacant site adjacent to the Paddington Infirmary with a frontage to Harrow-road, for the purpose of providing housing accommodation for the working classes.

LONDON (POPLAR).—The B.C. propose a scheme for 72 or 96 houses and flats on a site at Millwall.

LONDON (WOOLWICH).—The B.C. has made application to the L.C.C. for sanction to borrow £11,407 10s. for the erection of 20 concrete houses on the Council's housing estate at Eltham.

LONGRIDGE.—The Golf Club are proposing to provide sleeping accommodation for visitors at their club house, which will necessitate extensions being made.

LONGTON.—The Lancashire E.C. are to proceed with their original scheme of providing a Practical Subjects Room and an Assembly Hall at the Council School, at a cost of about £3,000.

MALTON.—Plans for a new hospital have been approved by the U.D.C.

MANCHESTER.—The Libraries Committee decided to invite tenders for a library at Withington. Plans have already been passed for the building, which is estimated to cost £14,000. The site is at the corner of Wellington-road and Wilmslow-road.

MERTHYR TYDFIL.—The B.C. is obtaining a site for a central vehicle garage and stores. The estimated cost is over £5,000.

MIDDLESBROUGH.—The B.G. are making application to the M.H. for sanction to expend £10,465 on alterations and additions to the nurses' home at Holgate. The Board is also preparing a scheme for the reconstruction of the heating and hot water installation at the institution, at an approximate cost of £20,500.—The Housing Committee has completed negotiations for securing land between St. Barnabas's-road and Devonshire-road, capable of providing sites for 390 houses.

MORECAMBE.—The M.H. has held an inquiry into the Corporation's application to borrow £25,000 for the purpose of laying out a park in the West End of the town.—New offices and stor.s are to be erected at the T.C. Gas Works. The B.S. has been asked to prepare an estimate of the cost of improvements at the Sanatorium. Permission has been given to the trustees of the Morecambe Parish Church Parochial Hall to proceed with the development of the site in Church-street for the war memorial.

NELSON.—The B.E. have approved the scheme for the erection of a secondary school.

NENAGH.—The U.D.C. has received sanction for a loan of £1,240 for housing.

NEWPORT.—The Corporation has entered into a contract with the Allied Building Corporation for the erection by the latter body of the new houses in the parishes of Bettws and Malpas.

OSSETT.—The T.C. instructed the borough surveyor to advertise for tenders for the erection of 20 houses on the Leeds-road site.

OSWALDTWISTLE.—The U.D.C. are making application to borrow money for 16 houses in Thwaites-road.

PETERBOROUGH.—The Hospital Committee accepted a £69,545 tender for a new hospital as the war memorial.

PONTEFRACT.—Vicarage at Pontefract, at a cost of £2,500. Messrs. Garside & Pennington have prepared the plans.

PONTYPOOL.—The U.D.C. is to erect 50 houses.

PORTHCAWL.—The U.D.C. has applied for sanction to borrow £7,456 for water supply extension works, £5,100 for West Ward, and £12,416 for East Ward sewerage extension schemes.

PRESTON.—The T.C. passed plans: H. Heaton, 10 houses, Shelley-road, and 12 houses, Arnett-road and Briggs-road.

PULBOROUGH (SUSSEX).—A scheme is being prepared for the erection of a sugar beet factory at an estimated cost of £500,000.

RADSTOCK.—The U.D.C. has received sanction from the M.H. to the borrowing £11,720 for 28 houses, roads, and sewers.

RETFORD.—In connection with the housing extension scheme the T.C. have allotted to the Co-op. Society 20 free plots of land, and five plots to other persons.

ROCHDALE.—The B.S. has been instructed to proceed with the preparation of plans, specifications and quantities for the erection of a new school in Lower-place. The Housing Committee are to apply for sanction to borrow £74,200 in respect of the Kilworth-street extension and Clarke's-lane housing schemes. Plans for 14 more subsidy houses were approved.

ROSSINGTON.—Roman Catholic church. The Rossington Main Colliery Co. have provided the site.

ROWLEY REGIS.—The U.D.C. are to make application to the M.H. for sanction to the erection of a block of steel houses, approximately six houses. The M.H. has given sanction to the scheme for the provision of open-air swimming baths at Haden Hill Park, Old Hill, at a cost of £1,770.

SALFORD.—The C.B. are to consider a resolution of the Special Committee *re* Workhouse site, recommending the Council to purchase from the Salford B.G. a plot of land (forming part of the Workhouse site), containing 29,198 sq. yds., together with the buildings thereon, at the price of £11,600. Application for this money is to be made to the M.H.

SALOP.—The C.C. propose carrying out road improvement scheme, at an estimated cost of £53,000.

SALTAIRE.—Plans have been approved for extensions to the hospital for the Governors.

SANDERSTEAD.—Plans passed by U.D.C.: 146 houses on three new streets, off Selsdon-road, for Messrs. Richard Costain & Sons, Ltd.

SCARBOROUGH.—The T.C. has decided to proceed, as soon as plans have been adopted, with the erection of Municipal Medical Baths in Sarony-square, and the reconstruction of the Royal Albert-drive sea wall.

SHEFFIELD.—A proposal for the extensions of the Edgar Allen Institution in Gill-street is under consideration.

SHENLEY.—The Middlesex C.C. propose to erect a mental hospital to accommodate 2,000 patients.

SHIPLEY.—The M.H. have sanctioned a loan of £5,500 for the erection by the U.D.C. of a smallpox hospital at Heaton Royds. Plans passed: Sixty houses, Hilton and other roads, for Mr. A. Chippindale.

SLIGO.—The Corporation is to seek a loan of £2,000 to carry out urgent repairs at Farncardy and Kinnellagh waterworks.

SOUTH BENFLEET.—The Essex E.C. are to erect a new Council school by direct labour, at an estimated cost of £9,333.

SOUTHEND-ON-SEA.—Plans passed by the T.C.: New hotel, London-road, for A. H. White; warehouse, offices, and mess room, North-road, for George & Sons; 12 houses, South-avenue, for W. L. Allen.

SOUTH SHIELDS.—The Governors of the Ingham Infirmary have approved a scheme for the extension of the present buildings, at a cost of about £50,000.

STAMFORD.—Traylor & Lenton, architects, have prepared plans for extensions to the Stamford Hospital comprising new children's ward and new maternity ward. The total cost is estimated at £8,350.

STANLEY.—The U.D.C. has approved plans and estimates submitted by D. Balfour & Sons, civil engineers, of Newcastle, for new sewerage works at Hustle Down, and application is being made to the M.H. for sanction to raise £35,000 to cover the cost of the proposed works.

STOKE-ON-TRENT.—The M.H. have sanctioned a loan of £18,000 for the purchase of the site of the Palais de Danse, Hanley. The decoration of King's Hall, Stoke, is to be undertaken, at an estimated cost of £1,500. A revised scheme is to be prepared for a maternity home. The workshops for the blind are to be extended at a cost of £500.—The T.C. has accepted a tender for 700 houses, at £329,000.

SUNDERLAND.—The Corporation passed plans: W. & T. R. Milburn, 10 houses, Sidecliff, Roker; Messrs. Brown, 10 pairs of semi-detached villas, Durham-road, and laying-out of land behind Hurstwood-road, formerly Ladies' Walk, for 20 houses; W. & T. R. Milburn, for a development on Newcastle-road for 26 pairs of semi-detached villas.

TEMPLENEWSAM.—Plans of a new sewage scheme for the Halton, Whitkirk and Colton districts have been prepared by Mr. Shaw, Engineer to the Hunslet R.D.C. The scheme is estimated to cost £15,000, and the plans are being forwarded to the M.H. for their consideration.

THORNE.—Plans for 250 houses for the Hatfield Main Colliery have been passed by the R.D.C.

TOTTENHAM.—The D.C. approved plans: 31 houses, Water Tower estate; 10 in Shelbourne-road.

TRALEE.—The Harbour Board propose to construct additional works at Fenit Pier, on the West Kerry entrance to Tralee Bay. An application has been made to the Ministry of Commerce, Irish Free State, for a provisional order. The Board proposes to avail of its powers to borrow £11,000 for expenditure on the works.

TYNEMOUTH.—Messrs. Mouchell are to make the necessary surveys in connection with the reconstruction of the eastern section of the Union Quay. Shelter, conveniences and dressing boxes are to be provided at the bathing pool. The B.G. propose to provide additional accommodation for 16 beds at the poor law institution for tuberculosis cases. R. Irvin & Sons, Ltd., are to establish fish liver oil works. Sites at Cullercoats are being purchased for the construction of public conveniences.—The T.C. passed plans: Twenty-one blocks of maisonnettes, between The Quadrant and Central-avenue, Balkwell estate, for the C.B.; 19 houses, Balmoral-gardens, North Shields, by A. K. Tasker, for Jas. Fraser.

UXBRIDGE.—A scheme is being revived for the establishment of a maternity hostel and convalescent home. Plans passed: Twelve shops, Cowley-road, for A. H. Treby.

WANDSWORTH.—The B.C. recommend that the Mayor's Room at the Council House should be redecorated and refurnished. The Borough Engineer has prepared a scheme for this purpose, the estimated cost being approximately £341.—Application is to be made to the L.C.C. for sanction to a loan of £46,000 for the erection of houses at Southfields and Furzedown estates.—The L.C.C. has sanctioned the borrowing of £10,126 for making-up and paving new streets.—Plans passed by the B.C.: Belfrage, Saville & Hooper, 8 houses and 28 houses at Sutherland-grove, Southfield; F. T. Wooding & Sons, 32 houses in Downton-avenue, 16 in Nuthurst-avenue, and 48 in Wavertree-road, Streatham; G. H. King & Sons, sports pavilion, at Heathfield-grounds, Trinity-road, Springfield; A. G. Jenkins, 11 houses, Fishponds-road, Balham.

WATERFORD.—£1,000 is being spent on rebuilding the quay wall.

WELSHPOOL.—The T.C. voted £400 towards the cost of a bridge which it is suggested the Montgomery C.C. should build over the main road at the railway level-crossing at Buttington.—The C.C. are prepared to spend £1,500.—Slum clearance schemes are to be carried out in various parts of the town.—Plans for thirty-two houses were approved.

WELWYN.—The R.D.C. approved plans and estimates for the laying out of the site for 80 houses for the Welwyn-London-road housing scheme, at an approximate cost of £2,700.

WHITLEY BAY.—The parishioners of St. Edward's R.C. Church are proposing to erect a new church to accommodate 700 persons, to be built at the junction of Park-road and Coquet-avenue.

WYCOMBE.—The T.C. passed plans: Rebuilding of factory premises by F. Parker & Sons; factory, Copyground-lane, for A. Rixon.

## TRADE NEWS

Messrs. E. Pollard & Co., Ltd., inform us that their recent fire occurred at their showrooms in 29, Clerkenwell-road, and not at their shop-fitting factory in Aylesbury-street. It was nothing so serious as published in certain papers; in fact, only the top floor was damaged, and a very small amount of stock spoiled by water. They hope to have the affected department running normally by the time we go to press.

We have received from Messrs. Young & Marten, Ltd., a copy of their latest booklet (No. 8), giving stock selections for the building and allied trades. Conveniently bound in folder form, with an excellent index, it gives full details, prices, &c., of the various commodities manufactured by this firm. Messrs. Young & Marten, Ltd., will be pleased to send a copy to any *bona-fide* builders on application to their Caledonian Works, Stratford, E.

Messrs. The Ransome Machinery Co., Ltd., 14–16, Grosvenor-gardens, London, S.W.1, forward us a copy of their new catalogue No. 38, of the F. H. Patent Concrete Discharging Skip. Upon perusal of this catalogue it will be seen that the "F. H. Skip" permits the use of a new system of placing concrete in an exceptionally expeditious and economical manner. It has been designed to handle concrete *en masse* without tilting or tipping (and therefore very much quicker) with a minimum of labour, and at minimum cost. An excellent series of illustrations clearly demonstrate the advantages of this skip. We recommend all who wish to save time and labour and half their placing costs, and at the same time possess a machine which combines maximum strength and minimum weight for a given capacity, to write for a copy of this well-produced catalogue.

We have received from Messrs. Holman Bros., Ltd., Cambourne, two new lists dealing principally with their pneumatic tools. The pamphlet dealing with the new Holman pneumatic hammers, states there are many novel features, the chief of which is the main valve, the most important part of any pneumatic tool, and, they state, the most neglected as far as the attainment of reliability is concerned. Under equal test conditions the Holman hammers, they state, will exceed the work of any other hammer of like size and on a lower air pressure, and their working capacity with a less consumption of air is greater. Also, vibration is practically non-existent, and the strict laboratory treatment of materials used ensures longer life, and the cost of upkeep is reduced to the absolute minimum. The Holman automatic air line lubricator has, it is stated in the second pamphlet, nothing mechanical in it which can get out of order. It also effects considerable economy in oil and simplicity in action. Copies of these pamphlets should certainly be acquired by all interested in mechanical efficiency.

We have received from Messrs. James Keith & Blackman Co., Ltd., of 27, Farringdon-avenue, E.C. 4, a descriptive pamphlet dealing with the "Keith-Blackman" wood refuse removal plant. Obviously, an efficient wood refuse removal plant can only be designed and constructed by engineers who have specialised in this class of work, who have experience in the machines and processes through which wood passes, and who are skilled in the application of fans and the design of ducting systems and settling apparatus. We would, therefore, suggest that all interested in the question of wood refuse should communicate with this firm, from whom full particulars can be obtained. The illustrations in the pamphlet enable one to appreciate at a glance the advantages of this—"Cleanliness First"—machine.

### Builders' Estates.

Mr. William Henry Thomas Kelland, of Manor-road, Stoke Newington, and of Messrs. W. H. T. Kelland & Sons, Ltd., builders (net personalty £12,159), £29,258.

Mr. Henry Langmaid, 2, York-place, Newport (Mon.), £6,638 (gross), net personalty £4,279.

# PRICES CURRENT OF MATERIALS

**[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry.—Ed.]**

## BRICKS, &c.

Per 1,000 Alongside, in River Thames up to London Bridge.

| | £ s. d. |
|---|---|
| Best Stocks | 4 3 6 |
| Second Hard Stocks | 3 18 6 |

Per 1,000. Delivered at London Goods Stations.

| | £ s. d. | | £ s. d. |
|---|---|---|---|
| Flettons, at King's Cross | 2 13 3 | Best Blue Pressed Staffs | 9 5 0 |
| Do. grooved for plaster | 2 15 3 | Do. Bullnose | 9 15 0 |
| Do. Bullnose | 3 8 3 | Blue Wire Cuts | 7 5 0 |
| Best Stourbridge Fire brick:— | | | |
| 2½ in. | 8 11 0 | 3 in. | 10 3 0 |

GLAZED BRICKS—

| | | | |
|---|---|---|---|
| Best White Ivory, and Salt Glazed Stretchers | 23 0 0 | D'ble Str'tch'rs | 31 10 0 |
| | | D'ble Headers | 28 10 0 |
| | | One Side and two Ends | 32 10 0 |
| Headers | 22 10 0 | Two Sides and one End | 33 10 0 |
| Quoins, Bullnose and 4½ in Flats | 29 10 0 | S plays and Squints | 31 0 0 |

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours, Hard Glaze, £5 10s. extra over white.

BREEZE CONCRETE SLABS.
Delivered London

| | s. d. | | s. d. |
|---|---|---|---|
| 2 in. per yd. super | 1 11 | 3 in. per yd. super | 2 9 |
| 2½ in. " | 2 4 | 4 in. " | 3 6 |

| | s. d. | |
|---|---|---|
| Thames Ballast | 10 6 | per yd. |
| Pit Sand | 13 9 | " " |
| Thames Sand | 14 6 | " " |
| Best Washed Sand | 14 6 | " " |
| ½ in. Shingle for Ferro-Concrete | 12 9 | " " |
| ¾ in. " | 14 0 | " " |
| ¾ in. Broken Brick" | 11 6 | " " |
| Pan Breeze | 7 6 | " " |

delivered 2 miles radius Paddington.

Per ton delivered in London area in full van loads.

Best Portland Cement. British Standard Specification. Test £2 18 0 to £3 3 6
51s. alongside at Vauxhall in 80-ton lots.

Ferrocrete per ton extra on above 0 10 0

"Lightening" Brand, an aluminous cement of British manufacture. Per ton, f.o.r., manufacturer's works 5 0 0

Per ton delivered in London area in full van loads.

| | £ s. d. |
|---|---|
| Super Cement (waterproof) | 4 8 0 |
| Roman Cement | 8 15 0 |
| Parian Cement | 5 15 0 |
| Keene's Cement, White | 5 15 0 |
| " " Pink | 5 10 0 |
| Plaster, Coarse, Pink | 3 0 0 |
| " " White | 3 12 6 |
| " Fine | 5 12 0 |
| Sirapite, Coarse | 3 9 0 |
| " Finish | 3 17 0 |
| Grey Stone Lime | 2 11 9 |
| Chalk Lime | 2 11 9 |
| Best Ground Blue Lias Lime | 2 4 6 |
| "Hydralime" (packed in sacks 84lbs. net each | 60/9–61/9 |
| " (delivered to station) | 52/0–53/0 |
| Hair | 17 0 0 |
| Granite Chippings | 1 12 0 |

NOTE.—Sacks are charged 1s. 9d. each and credited 1s. 6d. if returned in good condition within three months, carr. pd.

Stourbridge Fireclay in s'cks 35s. 0d. per ton at rly. dpt.

## STONE.

| | s. d. |
|---|---|
| BATH STONE—delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube | 2 9½ |
| Do. do. delivered in railway trucks at Nine Elms, L. & S.W.R., per ft. cube | 2 11½ |
| PORTLAND STONE— | |
| Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, L. & S.W.R., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube | 4 4 |
| Do. do. delivered on road wagons at above stations, per ft. cube | 4 5 |
| White basebed, 3d. per ft. cube extra. | |
| NOTE.—1d. per ft. cube extra for every foot over 20 ft. *average*, and ½d. beyond 30 ft. | |
| HOPTON-WOOD STONE— | |
| Delivered at any Goods Station, London. | |
| Small random blocks, up to 10 ft. cube. P. ft. cb. | 7 0 |
| Random blocks from 10 ft. and over " | 17 0 |
| Sawn two sides " | 27 0 |
| Sawn three or four sides " | 32 0 |
| YORK STONE, BLUE—*Robin Hood Quality.* | |
| Delivered at any Goods Station, London. | s. d. |
| 6 in. sawn two sides landings to sizes (under 30 ft. super.) Per ft. super | 5 6 |
| 6 in. rubbed two sides, ditto " | 6 0 |
| 3 in. sawn two sides slabs (random sizes) " | 2 3½ |
| 2 in. to 2½ in. sawn one side slabs (random sizes) " | 1 6½ |
| 1½ in. to 2 in. ditto, ditto " | 1 4 |
| HARD YORK— | |
| Delivered at any Goods Station, London. | |
| Scappled random blocks Per ft. cube | 6 3 |
| 6 in. sawn two sides landing to sizes (under 40 ft. super.) Per ft. super | 5 1½ |
| 6 in. rubbed two sides ditto " | 6 1½ |
| 4 in. sawn two sides slabs (random sizes) " | 2 10 |
| 3 in. ditto ditto " | 2 1½ |
| 2 in. self-faced random flags Per yd. super | 9 0 |

## ARTIFICIAL STONE.

Delivered in London Area in full van loads, per ft. cube:—Plain, 6s. 6d.; Moulded, 7s. 9d.; Cills, 8s. 3d.

## WOOD.

GOOD BUILDING DEAL.

| Inches. | per stan. | Inches. | per stan. |
|---|---|---|---|
| 4 × 11 | £32 0 | 3 × 6 | £23 0 |
| 4 × 9 | 28 0 | 3 × 11 | 28 0 |
| 4 × 8 | 26 0 | 2 × 11 | 28 0 |
| 4 × 7 | 25 0 | 3 × 9 | 25 0 |
| 3 × 8 | 24 0 | 2½ × 9 | 25 0 |
| 3 × 7 | 23 0 | 3 × 4½ | 23 0 |
| 2½ × 7 | 22 0 | 3 × 4 | 23 0 |

## WOOD
*(continued).*

PLANED BOARDS.

| | | | |
|---|---|---|---|
| 1 × 11 | £32 0 | 1 × | £30 0 |

PLAIN EDGE FLOORING.

| Inches. | per sq. | Inches. | per sq. |
|---|---|---|---|
| ⅝ | 21/– | 1¼ | 32/6 |
| ⅞ | 23/– | 1½ | 37/6 |
| 1 | 25/– | | |

TONGUED AND GROOVED FLOORING.

| Inches. | per sq. | Inches. | per sq. |
|---|---|---|---|
| 1 | 25/– | 1¼ | 32/6 |
| 1¼ | 32/6 | 1½ | 37/6 |
| 1½ | 37/6 | | |

MATCHINGS (BEST).

| Inches. | per sq. |
|---|---|
| ⅝ | 16/6 |
| ¾ | 20/– |
| 1 | 25/– |

| Inches. | BATTENS. | s. d. |
|---|---|---|
| ¾ × 2 | | 2 6 per 100 ft. |

SAWN LATHS.

| | |
|---|---|
| Per bundle | 0 2 4 |
| Dry Wainscot Oak, per ft. super, as inch | 0 2 0 to 0 2 6 |
| ¾ in. do. do. | 0 1 6 to 0 2 0 |
| Dry Mahogany—Honduras, Tabasco, African, per ft. super, as inch | 0 1 9 to 0 2 6 |
| Cuba Mahogany | 0 3 0 to 0 3 6 |
| Teak (Rangoon, Moulmein or Java), per ft. cube | 0 14 0 to — |
| American Whitewood planks, per ft. cube | 0 12 0 to 0 14 0 |
| Best Scotch glue, per cwt. | 4 10 0 to — |
| Liquid Glue, per cwt. | 4 7 0 to 5 10 0 |

## SLATES.

1st quality slates from Bangor or Portmadoc carriage paid in full truck loads to London Rate Station. Per 1,000 of 1,200.

| | £ s. d. | | £ s. d. |
|---|---|---|---|
| 24 by 12 | 37 12 6 | 18 by 10 | 21 2 6 |
| 22 by 12 | 34 0 0 | 18 by 9 | 18 12 6 |
| 22 by 11 | 31 5 0 | 16 by 10 | 17 12 6 |
| 20 by 12 | 29 15 0 | 16 by 8 | 13 15 0 |
| 20 by 10 | 25 12 6 | | |

## TILES.

| | Per 1,000 f.o.r. London. £ s. d. |
|---|---|
| Best machine-made tiles from Broseley or Staffordshire district | 5 12 6 |
| Ditto hand-made ditto | 5 17 6 |
| Ornamental ditto | 6 2 6 |
| Hip and valley tiles (per dozen) { Hand-made | 0 9 6 |
| Hip and valley tiles (per dozen) { Machine-made | 0 9 0 |

## METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION PER TON—

| | £ s. d. |
|---|---|
| R.S. Joists, cut and fitted | 13 10 0 |
| Plain Compound Girders | 15 10 0 |
| " Stanchions | 17 10 0 |
| In Roof Work " | 20 10 0 |

MILD STEEL ROUNDS.
To London Station, per ton.

| Diameter. | £ s. d. | Diameter. | £ s. d. |
|---|---|---|---|
| ⅜ in. | 16 10 0 | ⅜ in. to ½ in. | 13 10 0 |
| ½ in. | 14 10 0 | ⅝ in. to 2½ in. | 13 0 0 |

WROUGHT-IRON TUBES AND FITTINGS—
(Discount off List for lot of not less than £7 net value delivered direct from Works, 2½ per cent. less above gross discounts, carriage forward if sent from London Stocks.)

| | Tubes. Sizes ⅛" to 6" | Fittings. ¼" & under. | Fittings. Over ¼" to 6" | Flanges. ¼" & under. | Flanges. Over ¼" to 6" |
|---|---|---|---|---|---|
| Black Gas | 55 % | 47½ % | 50 % | 57½ % | 60 % |
| Blue Water | 50 % | 42½ % | 45 % | 52½ % | 55 % |
| Red Steam | 45 % | 37½ % | 40 % | 47½ % | 50 % |
| Galv'd Gas | 40 % | 37½ % | 40 % | 47½ % | 50 % |
| " Water | 33½ % | 32½ % | 35 % | 42½ % | 45 % |
| " Steam | 27½ % | 27½ % | 30 % | 37½ % | 40 % |

C.I. HALF-ROUND GUTTERS—London Prices, ex Works.

| Per yd. in 6 ft. lengths. | Gutters. | Angles and Nozzles. | Stop Ends. |
|---|---|---|---|
| 3 in. | 1/2½ | 11½d. | 3½d. |
| 3½ in. | 1/4 | 1/0½ | 3½d. |
| 4 in. | 1/5 | 1/2½ | 3½d. |
| 4½ in. | 1/6½ | 1/4 | 4½d. |
| 5 in. | 1/9½ | 1/5½ | 5½d. |

O.G. GUTTERS.

| | | | |
|---|---|---|---|
| 3 in. | 1/7 | 1/3½ | 3½d. |
| 3½ in. | 1/7 | 1/3½ | 3½d. |
| 4 in. | 1/8½ | 1/4 | 3½d. |
| 4½ in. | 1/10½ | 1/6½ | 4½d. |
| 5 in. | 2/3 | 1/9½ | 5½d. |

RAIN-WATER PIPES, &c.

| Per yd. in 6 fts. | Pipe. | Bends, stock angles. | Branches, stock angles. |
|---|---|---|---|
| 2 in. plain | 1/9½ | 1/2½ | 1/8½ |
| 2½ in. " | 1/11½ | 1/4 | 2/0½ |
| 3 in. " | 2/4½ | 1/8 | 2/6 |
| 3½ in. " | 2/10 | 2/– | 2/10½ |
| 4 in. " | 3/3 | 2/4½ | 3/6 |

L.C.C. COATED SOIL PIPES—London Prices, ex Works.

| | Pipe. s. d. | Bends, stock angles. s. d. | Branches, stock angles. s. d. |
|---|---|---|---|
| 2 in. per yd. in 6fts. plain | 2 11 | 2 3 | 2 9 |
| 2½ in. " | 3 5 | 2 6 | 3 5 |
| 3 in. " | 4 1 | 2 9 | 4 0½ |
| 3½ in. " | 4 5½ | 3 5 | 4 8½ |
| 4 in. " | 4 11½ | 3 9½ | 5 5½ |

L.C.C. COATED DRAIN PIPES—London Prices ex Works.

| | Pipe. s. d. | Bends, stock angles. s. d. | Branches stock angles. s. d. |
|---|---|---|---|
| 3 in. per yd. in 9ft. lengths | 4 3 | 5 9 | 7 8 |
| 4 in. " " | 6 3 | 6 11 | 9 6 |
| 5 in. " " | 7 10 | 12 0 | 16 3 |
| 6 in. " " | 9 6 | 15 0 | 20 9 |

Gasken for jointing, 38/6 per cwt.

| IRON— | Per ton in London. £ s. d. | | £ s. d. |
|---|---|---|---|
| Common Bars | 13 10 0 | to | 14 10 0 |
| Staffordshire Crown Bars—good merchant quality | 14 10 0 | .. | 15 10 0 |
| Staffordshire "Marked Bars" | 17 0 0 | .. | 18 0 0 |
| Mild Steel Bars | 12 0 0 | .. | 13 0 0 |

## METALS (*Continued*).

| | £ s. d. | | £ s. d. |
|---|---|---|---|
| Steel Bars, Ferro-Concrete quality, basis price | 12 0 0 | .. | 13 0 0 |
| Hoop iron, basis price | 16 0 0 | .. | 17 0 0 |
| " Galvanised | 31 0 0 | .. | 32 0 0 |
| Soft Steel Sheets, Black— | | | |
| Ordinary sizes to 20 g. | 14 10 0 | .. | 15 10 0 |
| " " 24 g. | 15 10 0 | .. | 16 10 0 |
| " " 26 g. | 17 10 0 | .. | 18 10 0 |
| Sheets Flat Best Soft Steel, C.R. & C.A. quality— | | | |
| Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g. | 20 0 0 | .. | 22 0 0 |
| Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 22 g. and 24 g. | 22 0 0 | .. | 23 0 0 |
| Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 26 g. | 24 0 0 | .. | 26 0 0 |
| Flat and Galvanised Corrugated Sheets— | | | |
| Ordinary sizes, 6 ft. to 9 ft. to 20 g. | 19 10 0 | .. | 20 10 0 |
| Ordinary sizes, 6 ft. to 9 ft. to 22 g. and 24 g. | 20 0 0 | .. | 21 0 0 |
| Ordinary sizes, 6 ft. to 9 ft. to 26 g. | 23 0 0 | .. | 24 0 0 |
| Sheets Galvanised Flat, Best quality— | | | |
| Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker | 22 10 0 | .. | 23 10 0 |
| Best Soft Steel Sheets, 22 g. and 24 g. | 24 10 0 | .. | 26 10 0 |
| Best Soft Steel Sheets, 26 g. | 26 0 0 | .. | 27 0 0 |
| Cut Nails, 3 in. to 6 in. | 20 10 0 | .. | 22 0 0 |

(under 3 in. usual trade extras.)

METAL WINDOWS.—Standard sizes, suitable for complete houses, including all fittings, painting two coats, and delivery to job, average price about 1s. 4d. to 1s. 7d. per foot super.

## LEAD, &c.

(Delivered in London.)

| | £ s. d. |
|---|---|
| LEAD—Sheet, English, 4 lb. and up | 47 10 0 |
| Pipe in coils | 48 0 0 |
| Soil Pipe | 51 0 0 |
| Compo pipe | 52 0 0 |

NOTE—Country delivery, 30s. per ton extra; lots under 3 cwt., 2s. per cwt. extra, and over 3 cwt. and under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes, 2s. cwt. extra.

| | | | |
|---|---|---|---|
| Old lead, ex London area, at Mills per ton | 33 | 0 | 0 — |
| Do., ex country, carriage forward per ton | 34 | 0 | 0 — |

## COPPER.

| | | s. d. |
|---|---|---|
| Seamless Copper tubes (basis) | per lb. | 1 1½ |
| Strong sheet | " | 2 3 |
| Thin | " | 2 4 |
| Copper nails | " | 2 3 |
| Copper wire | " | 2 4 |

## PLUMBERS' BRASS WORK.
Delivered in London.

NEW RIVER PATTERN SCREW DOWN BIB COCKS FOR IRON.

| ½ in. | ¾ in. | 1 in. | 1¼ in. | 1½ in. | 2 in. |
|---|---|---|---|---|---|
| 29/– | 45/– | 76/– | 153/– | 246/– | 510/– per doz. |

NEW RIVER PATTERN SCREW DOWN STOP COCKS AND UNIONS.

| ½ in. | ¾ in. | 1 in. | 1¼ in. | 1½ in. | 2 in. |
|---|---|---|---|---|---|
| 41/6 | 62/– | 92/– | 174/– | 300/– | 588/– per doz. |

NEW RIVER PATTERN SCREW DOWN MAIN FERRULES.

| ½ in. | ¾ in. | 1 in. |
|---|---|---|
| 39/6 | 60/– | 116/6 per doz. |

CAPS AND SCREWS.

| 1½ in. | 1¼ in. | 2 in. | 3 in. | 3½ in. | 4 in. |
|---|---|---|---|---|---|
| 7/6 | 10/– | 14/– | 23/– | 30/– | 42/– per doz. |

DOUBLE NUT BOILER SCREWS.

| ½ in. | ¾ in. | 1 in. | 1¼ in. | 1½ in. | 2 in. |
|---|---|---|---|---|---|
| 7/6 | 11/– | 17/– | 29/– | 36/– | 63/– per doz. |

BRASS SLEEVES.

| 1¼ in. | 2 in. | 3 in. | 3½ in. | 4 in. |
|---|---|---|---|---|
| 10/– | 12/– | 20/– | 24/– | 31/– per doz. |

NEW RIVER PATTERN CROYDON BALL VALVES, S.F.

| ½ in. | ¾ in. | 1 in. | 1¼ in. | 1½ in. |
|---|---|---|---|---|
| 35/– | 56/– | 98/– | 162/– | 228/– per doz. |

DRAWN LEAD P. & S. TRAPS WITH BRASS CLEANING SCREW.

| | 1¼ in. | 1½ in. | 2 in. | 3 in. |
|---|---|---|---|---|
| 8 lbs. P. traps | 33/– | 41/– | 56/– | 101/– per doz. |
| 8 lbs. S traps | 35/– | 45/– | 66/– | 126/– " |

TIN—English Ingots, 2/6 per lb. SOLDER—Plumbers' 1/3, Tinmen's 1/5, Blowpipe 1/6 per lb.

## PAINTS, &c.

| | £ s. d. |
|---|---|
| Raw Linseed Oil, in pipes per gallon | 0 4 2 |
| " " " in barrels " | 0 4 4 |
| " " " in drums " | 0 4 7 |
| Boiled " " in barrels " | 0 4 7 |
| " " " in drums " | 0 4 10 |
| Turpentine in barrels " | 0 5 6 |
| " in drums (10 gall.) " | 0 5 9 |
| Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.) | 57 5 0 |
| GENUINE WHITE LEAD PAINT—"Father Thames," "Nine Elms," "Park," "Supremus," "St. Paul's," "Spedol," "Polacco" and other best brands (in 14 lb. tins) not less than 5 cwt. lots per ton delivered | 78 5 0 |
| Red Lead, Dry (packages extra) per ton | 55 10 0 |
| Best Linseed Oil Putty per cwt. | 0 15 0 |
| Filocol " | 0 15 0 |
| Size. XD Quality " | 0 3 6 |

*Continued on next page.*

* The information given on this page has been specially compiled for THE BUILDER and is copyright. Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

## PRICES CURRENT OF MATERIALS (*contd.*)

### GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

| | Per Ft. | | Per Ft. |
|---|---|---|---|
| 15 oz. fourths .. | 3½d. | 32 oz. fourths ..... | 8½d. |
| 15 „ thirds .... | 4½d. | 32 „ thirds ..... | 10½d. |
| 21 „ fourths .. | 5d. | Obscured Sheet 15 oz. | 4d. |
| 21 „ thirds .... | 6½d. | „ „ 21 „ | 5½d. |
| 26 „ fourths .. | 6d. | Fluted 15oz. 6½d. | 21oz. 9½d. |
| 26 „ thirds .... | 7½d. | En'lied 15oz. 5½d. | 21 oz 7½d. |

Extra price according to size and substance for square-cut from stock.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

| | Per Ft. |
|---|---|
| ⅛ Rolled plate ..... | 4½d. |
| 3/16 Rough rolled ..... | 5½d. |
| ¼ Rough rolled ..... | 6½d. |
| Figured Rolled, Baltic, Oceanic, Arctic, Stippolyte and small and large Flemish white .. | 6½d. |
| Ditto, tinted ..... | 9d. |
| Rolled Sheet ..... | 6d. |
| White Rolled Cathedral ..... | 5½d. |
| Tinted do. ..... | 7½d. |

Cast Plate is same price as rough rolled.

### VARNISHES, &c.

| | | Per gallon £ s. d |
|---|---|---|
| Oak Varnish ..... | Outside | 0 14 0 |
| Fine ditto ..... | ditto | 0 16 0 |
| Fine Copal ..... | ditto | 0 18 0 |
| Pale Copal ..... | ditto | 1 0 0 |
| Pale Copal Carriage ..... | ditto | 1 4 0 |
| Best Ditto ..... | ditto | 1 12 0 |
| Floor Varnish ..... | Inside | 0 18 0 |
| Fine Pale Paper ..... | ditto | 0 18 0 |
| Fine Copal Cabinet ..... | ditto | 1 2 6 |
| Fine Copal Flatting ..... | ditto | 1 0 6 |
| Hard Drying Oak ..... | ditto | 0 18 0 |
| Fine Hard Drying Oak ..... | ditto | 0 19 0 |
| Fine Copal Varnish ..... | ditto | 1 0 0 |
| Pale ditto ..... | ditto | 1 2 0 |
| Best ditto ..... | ditto | 1 12 0 |
| Best Japan Gold Size ..... | | 0 10 0 |
| Best Black Japan ..... | | 0 10 6 |
| Oak and Mahogany Stain (water) ..... | | 0 12 0 |
| Brunswick Black ..... | | 0 7 6 |
| Berlin Black ..... | | 0 14 6 |
| Knotting (patent) ..... | | 1 5 0 |
| French and Brush Polish ..... | | 0 17 0 |
| Liquid Dryers in Terebine ..... | | 0 9 0 |
| Cuirass Black Enamel ..... | | 0 7 0 |

### Builders' Estates.

Mr. David Lloyd, of Bryntirion, Penglais-road, Aberystwyth, Cardiganshire, timber merchant and builder, a director of the Aberystwyth Gas Co., who died on December 15, aged 71 (net personalty £25,982), £39,520.

Mr. Francis Sidney Gregory, of Bridlington, retired building contractor (net personalty £730), £14,322.

Mr. Albert Jones, of Sunnyside, Stairfoot, Barnsley, builder (net personalty £1,451), £11,515.

# THE SCOTTISH BUILDER

## NEW METHODS OF HOUSE CONSTRUCTION

Mr. John Wilson, F.R.I.B.A., the principal architect of the Scottish Board of Health, recently delivered an address on this subject before the Edinburgh Architectural Association. In the course of his remarks the lecturer said the question was primarily a social one, and drastic steps must be taken at once to provide accommodation in order to house homeless people and to clear the festering slums in their midst. The use of concrete for the construction of dwellings, in the form of precast blocks, was not a new or untried method. Since the war a considerable number of satisfactory concrete dwellings had been erected, in which several methods of construction had been employed. Most of these schemes, however, relied to a lesser or greater degree upon the employment of those expert trades in the building industry in which there was the greatest shortage and which were essential to the requirements of the present building programme in materials of construction other than concrete. There was a sufficient body of experience to show that comfortable, dry, and healthy dwellings, satisfactory in appearance, could be constructed of concrete. They required no skilled labour to prepare, and the quantity available was generally plentiful. The getting, crushing, screening and preparation of the materials would afford occupation suitable for men now unemployed. Other methods of construction might be divided into the following main categories:—(1) Houses with a steel framework and various kinds of infilling or external casings; (2) timber-framed houses faced externally with materials other than steel plates; (3) timber-framed houses faced externally with steel plates; (4) schemes where factory construction might be possible in suitable units, and the work of assembly carried out on the site; (5) various forms of burnt clay block construction; and (6) substitutes for particular materials, *e.g.*, plaster and/or roofing materials.

Various proposals had been advanced for the erection of the skeleton of the house in steel framework with different kinds of infilling or casings, such as bricks, concrete blocks, concrete slabs, asbestos sheets, &c. Generally, up to the present, local authorities had not found that proposals on these lines had had any economic grounds for their adoption, but the fact that the roof could be put on immediately the steel framing was fixed facilitated organisation of the work, especially in wet weather, and made for speed of erection. The risk of fire, which was one of the main factors to be taken into account in the consideration of timber dwellings, would tend to limit their adoption on a big scale in the large industrial centres. Further, if the erection of timber houses were to be carried out in large numbers on the site by the ordinary methods of building, most of the skilled building craftsmen required for the normal building programme would still be needed, with the substitution, to a certain extent, of the carpenter for the bricklayer. There were, however, various proposals involving the construction of timber houses in sections at the factory, leaving only the work of assembly to be carried out on the site. If the factory-made timber house could be erected for a satisfactory price it would constitute a material contribution to the solution of the housing problem in the rural and semi-rural areas and districts where proper isolation could be obtained. On the question of price, it would appear that hitherto timber houses had shown no saving in cost over normal brick houses in this country. In regard to houses with timber framing faced with steel plates, the Weir type of house was the most prominent. Lord Weir's house was essentially a timber-framed house faced externally with steel sheeting. There was, therefore, nothing very novel in the principle of its construction, and there was abundant evidence that houses made of steel on wooden framing could be considered as a reasonable method of providing immediate housing accommodation. Such houses had been occupied, when properly maintained, either as dwelling-houses or as buildings of various kinds for many years from the date of their construction.

Very few practicable proposals had been brought to the notice of the public for what might be termed "factory production of houses" in materials other than steel and wood. The main difficulty in embodying other materials was the question of transport, and an important consideration was lightness in the material selected. A noteworthy proposal falling under this category was that put forward by Commander Burney (recently illustrated in the *Builder*), who was endeavouring to find some light material which could be pressed into moulds which formed, within reasonable weights, sections similar to the linings of tube railways, and which could be bolted together. If the final tests proved satisfactory it appeared that the system was one which had considerable potentialities. The same idea entered into a proposal to build houses of flanged cast-iron plates. Some of these houses had already been ordered as an experiment by the Rotherham Town Council.

### Housing Progress in Scotland.

The following figures show the progress that has been made in State-aided housing schemes in Scotland to February 28:—

| | Completed. | Under Construction. |
|---|---|---|
| 1919 Act .. .. | 23,799 .. | 1,679 |
| Private subsidy schemes .. .. | 2,324 .. | — |
| Slum clearance schemes .. .. | 1,065 .. | 2,504 |
| 1923 Act .. .. | 1,804 .. | 5,559 |
| 1924 Act (local authority scheme) .. | — .. | 821 |
| | 28,992 .. | 10,563 |

Of the total number of houses completed and under construction under the 1923 Act, 2,394 are by the local authorities and 4,969 by private enterprise.

## BUILDING TRADE WAGES IN SCOTLAND.*

The following are the present rates of wages in the building trade in the principal towns of Scotland. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur:—

| | Masons. | Bricklayers. | Carpenters, Joiners. | Plasterers. | Slaters. | Plumbers. | Painters. | Masons' | Bricklayers' | Plasterers' Labourers. |
|---|---|---|---|---|---|---|---|---|---|---|
| Aberdeen | 1/8 | 1/8½ | 1/8 | 1/8 | 1/8 | 1/8 | 1/7 | | | 1/0½ |
| Airdrie | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | — | 1/6½ | | | 1/8 |
| Alexandria | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | — | | | 1/3½ to 1/3½ |
| Arbroath | 1/7 | 1/7 | 1/7 | 1/7 | 1/7 | 1/7 | 1/5½ | | | 1/1½ |
| Ayr | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/6½ | | | 1/3 |
| Bathgate | 1/8 | 1/8 | 1/8 | 1/8½ | 1/8 | 1/8 | 1/6½ | | | 1/2 to 1/3 |
| Blairgowrie | 1/7 | 1/7 | 1/7 | 1/7½ | 1/5 | 1/7 | 1/4 | | | 10d. to 1/- |
| Bo'ness | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | | | 1/3 |
| Coatbridge | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | — | 1/6½ | | | 1/3 to 1/3½ |
| Dumbarton | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | | | 1/3½ |
| Dumfries | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | | | 1/2 |
| Dundee | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | | | 1/3 |
| Dunfermline | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | | | 1/3½ |
| Edinburgh | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | | | 1/3½ |
| Falkirk | 1/7½ | 1/7½ | 1/7 | 1/8 | 1/7 | 1/7 | 1/6½ | | | 1/2½ |
| Fort William | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | 1/6 | | | 1/2 |
| Galashiels | 1/6½ | 1/5½ | 1/6½ | 1/6½ | 1/6½ | 1/6½ | 1/6 | | | 1/2 |
| Glasgow | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | | | 1/3½ |
| Greenock | 1/8 | 1/8 | 1/8 | 1/9 | 1/8 | 1/8 | 1/7 | | | /0½ to 1/3½ |
| Hamilton | 1/8 | 1/8 | 1/8 | 1/9 | 1/8 | 1/8 | 1/6½ | | | 1/3½ |
| Hawick | 1/6 | 1/6 | 1/6 | 1/6–1/6½ | 1/6 | 1/6 | 1/6 | | | 1/2 |
| Helensburgh | 1/8 | 1/8 | 1/8 | 1/9 | 1/8 | 1/8 | 1/7 | | | 1/3½ |
| Inverness | 1/5 | — | 1/5 | 1/4 | 1/5 | 1/5 | 1/4 | | | 1/- to 1/2 |
| Kilmarnock | 1/8 | 1/8 | 1/8 | 1/9 | 1/8 | 1/8 | 1/8 | | | 1/3½ |
| Kirkcaldy | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | | | 1/3½ |
| Kirkwall | 1/5 | 1/5 | 1/4 | 1/5 | 1/5 | 1/4 | 1/4 | | | 1/ |
| Lanark | 1/8 | 1/8 | 1/8 | 1/9 | 1/8 | 1/8 | 1/6 | | | 1/- to 1/3 |
| Leith | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | | | 1/3½ |
| Motherwell | 1/8 | 1/8 | 1/8 | 1/9 | 1/8 | 1/8 | 1/6½ | | | 1/3½ |
| Perth | 1/8 | 1/8 | 1/8 | 1/9 | 1/8 | 1/8 | 1/6½ | | | 1/3 |
| Stirling | 1/3 | 1/8 | 1/8 | 1/8 | 1/8 | 1/8 | 1/6½ | | | 1/3½ |
| Stirlingshire (Eastern District) | 1/8-1/10 | 1/8-1/10 | 1/8 | 1/9 | 1/7 | 1/8 | 1/6½ | | | 1/3½ |
| Wishaw | 1/8 | 1/8 | 1/8 | 1/9 | 1/8 | 1/3 | 1/7 | | | 1/3½ |

* The information given in this table is copyright. The rates of wages in the various towns in England and Wales are given on page 544.

# CURRENT PRICES FOR BUILDING WORK IN LONDON*

## EXCAVATOR.

| | | s. | d. |
|---|---|---|---|
| Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep | per yard cube | 11 | 0 |
| Add if in clay | " " | 1 | 0 |
| Add for every additional depth of 6 ft. | " " | 0 | 6 |
| Planking and strutting to trenches | per foot super | 0 | 5 |
| Do to sides of excavation, including shoring | " " | 1 | 0 |

## CONCRETOR.

| | | | |
|---|---|---|---|
| Portland cement concrete in foundation 1 to 6 | per yard cube | 32 | 0 |
| Add if in underpinning in short lengths | " " | 7 | 0 |
| Add if in floors 6 in. thick | " " | 3 | 3 |
| Add if in beams | " " | 3 | 9 |
| Add if aggregate 1 : 2 : 4 | " " | 10 | 0 |
| Add for hoisting not exceeding 10 ft. beyond the first 10 ft | " " | 2 | 6 |

## BRICKLAYER.

| | | £ | s. | d. |
|---|---|---|---|---|
| Reduced brickwork in lime mortar and Fletton bricks | per rod | 30 | 0 | 0 |
| Add if in stocks | " | 7 | 10 | 0 |
| Add if in Staffordshire blues | " | 22 | 0 | 0 |
| Add if in Portland cement and sand | " | 1 | 10 | 0 |

### FACINGS.

| | | | |
|---|---|---|---|
| Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks | per ft. super | 0 | 0 | 1½ |

### POINTING.

| | | | | |
|---|---|---|---|---|
| Neat flat struck or weathered joint | " " | 0 | 0 | 3 |

### ARCHES.

| | | | | |
|---|---|---|---|---|
| Extra only to the price of ordinary brickwork :— | | | | |
| Fair external in half brick rings | " " | 0 | 0 | 10 |
| Axed in stocks | " " | 0 | 1 | 9 |
| Rubbed and gauged jointed in putty camber or segmental | " " | 0 | 6 | 0 |

### SUNDRIES.

| | | | | |
|---|---|---|---|---|
| Damp course in double course of slates breaking joint and bedded in Portland cement | " " | 0 | 1 | 0 |
| Setting ordinary register grates and stoves | each | 1 | 0 | 0 |
| Setting kitchener, including forming flues, &c., with all necessary fire bricks | " | 4 | 15 | 0 |

## ASPHALTER.

| | | s. | d. |
|---|---|---|---|
| Half-inch horizontal damp course | per yard sup. | 4 | 3 |
| Three-quarter-inch vertical damp course | " " | 8 | 6 |
| ½ inch on flats in two thicknesses | " " | 6 | 3 |
| Angle fillet | per foot run | 0 | 3 |
| Skirting and fillet 6 in. high | " " | 1 | 2 |

## MASON.

| | | | |
|---|---|---|---|
| York stone templates fixed | per foot cube | 13 | 0 |
| York stone sills fixed | " " | 22 | 0 |
| Bath stone and all labour fixed | " " | 10 | 6 |
| Portland stone fixed | " " | 20 | 0 |

## SLATER.

| | | | |
|---|---|---|---|
| Welsh 16 in. × 8 in. 3 in. lap, including nails | per square | 72 | 9 |
| Do. 20 in. × 10 in. Do. Do. | " | 80 | 9 |
| Do. 24 in. × 12 in. Do. Do. | " | 90 | 0 |

## CARPENTER AND JOINER.

| | | | |
|---|---|---|---|
| Fir framed in plates | per foot cube | 5 | 6 |
| Do. joists | " " | 5 | 6 |
| Do. roofs, floors and partitions | " " | 6 | 0 |
| Do. trusses | " " | 8 | 6 |

| | | ¾" | 1" | 1¼" | 2" |
|---|---|---|---|---|---|
| Deal rough close boarding | per sq. | 35/6 | 40/- | 45/- | 72/- |

| | | s. | d. |
|---|---|---|---|
| Flat centering for concrete floor, including struts or hangers | " | 50 | 0 |
| Do. to beams | per ft. sup. | 1 | 0 |
| Centres for arches | " | 1 | 6 |
| Gutter boards and bearers | " | 1 | 0 |

### FLOORING.

| | | ¾" | 1" | 1¼" | 1½" |
|---|---|---|---|---|---|
| Deal edges shot | per sq. | | 44/6 | 53/- | 60/6 |
| Do. tongued and grooved | " | | 49/- | 57/6 | 65/- |
| Do. matchings | " | 45/- | 51/- | | |
| Moulded skirting, including backings and grounds | per ft. sup. | 1/6 | 1/9 | 2/0 | 2/6 |

### SASHES AND FRAMES.

| | | s. | d. |
|---|---|---|---|
| One-and-a-half moulded sashes or casements | per foot super | 1 | 10 |
| Two Do. Do. Do. | " " | 2 | 1 |
| Add for fitting and fixing | " " | 0 | 3 |
| Deal-cased frames with 1 in. inner and outer linings, 1¼ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares double hung, double hung with pulleys, lines and weights; average size | " " | 3 | 9 |

### DOORS.

| | | 1½" | 1¾" | 2" |
|---|---|---|---|---|
| Two-panel square framed | per ft. sup. | 2/1 | 2/4 | 2/6 |
| Four-panel Do. | " | 2/5 | 2/8 | 2/11 |
| Two-panel moulded both sides | " | 2/8 | 2/11 | 3/2 |
| Four-panel Do. Do. | " | 2/11 | 3/2 | 3/5 |

## CARPENTER AND JOINER—continued.

### FRAMES.

| | | s. | d. |
|---|---|---|---|
| Deal wrot moulded and rebated | per foot cube | 14 | 0 |

| | | 1" | 1¼" | 1½" |
|---|---|---|---|---|
| Plain deal jamb linings framed | per ft. sup. | 1/7 | 1/8 | 1/11 |
| Deal shelves and bearers | " | 1/4 | 1/6 | 1/9 |
| Add if cross tongued | " | 2d. | 2d | 2d |

### STAIRCASES

| | 1" | 1¼" | 1½" | 2" | 2½" |
|---|---|---|---|---|---|
| Deal treads and risers in and including rough brackets | 2/1 | 2/4 | 2/9 | — | — |
| Deal strings wrot on both sides and framed | 1/8 | 2/ | 2/2 | 2/8 | — |

| | | s. | d. |
|---|---|---|---|
| Housings for steps and risers | each | 0 | 11 |
| Deal balusters, 1 in. × 1¼ in. | per ft. run. | 0 | 9 |
| Mahogany handrail; average 3 in. × 3 in. | " " | 6 | 0 |
| Add if ramped | " " | 11 | 10 |
| Add if wreathed | " " | 23 | 0 |

### FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

| | | | |
|---|---|---|---|
| 6 in. barrel bolts | 8½d. | Rim locks | 2/- |
| Sash fasteners | 11½d. | Mortice locks | 4/6 |
| Casement fasteners | 1/5 | Patent spring hinges and letting in to floor and making good | 19/- |
| Casement stays | 1/2 | | |
| Cupboard locks | 1/5 | | |

## FOUNDER AND SMITH.

| | | s. | d. |
|---|---|---|---|
| Rolled steel joists | per cwt. | 16 | 3 |
| Plain compound girders | " | 19 | 1 |
| Do. stanchions | " | 21 | 9 |
| In roof work | " | 27 | 6 |

## RAIN-WATER GOODS.

| | | 3" | 4" | 5" | 6" |
|---|---|---|---|---|---|
| Half-round plain rebated joints | ft. run | 1/6 | 1/9 | 2/- | 2/6 |
| Ogee Do. Do. | " | 1/9 | 2/- | 2/6 | 3/3 |
| Rain-water pipes with ears | " | 1/9 | 2/7 | | |
| Extra for shoes and bends | each | 4/4 | 5/11 | | |
| Do. stopped ends | " | 1/11 | 2/4½ | 3/7 | 4/- |
| Do. nozzles for inlets | " | 2/2 | 2/7 | 3/10 | 4/3 |

## PLUMBER.

| | | s. | d. |
|---|---|---|---|
| Milled lead and laying in flashings and gutters | per cwt. | 63 | 0 |
| Do. Do. in flats | " | 62 | 0 |
| Extra labour and solder in coated cesspools | each | 5 | 9 |
| Welt joint | per ft run. | 0 | 6 |
| Soldered seam | " " | 1 | 6 |
| Copper nailing | " " | 0 | 6 |

| | | ½" | ¾" | 1" | 1½" | 2" | 4" |
|---|---|---|---|---|---|---|---|
| Drawn lead waste | per ft. run | 1/2 | 1/9 | 2/0 | 3/4 | 4/0 | |
| Do. service | " | 1/8 | 2/2 | 2/7 | 3/10 | | |
| Do. soil | " | | | | | | 6/9 |
| Bends in lead pipe | each | | | | | 3/3 | 8/2 |
| Soldered stop ends | " | 1/2 | 1/8 | 2/1 | 2/10 | 3/6 | |
| Red lead joints | " | 11d. | 1/- | 1/3 | 1/11 | 2/4 | 4/10 |
| Wiped soldered joints | " | 2/10 | 3/6 | 4/- | 4/11 | 6/6 | 9/9 |
| Lead traps and cleaning screws | | | | | 14/7 | 19/6 | |
| Bib cocks and joints | | 6/4 | 9/7 | 15/4 | 41/- | | |
| Stop cocks and joints | | 15/4 | 17/2 | 25/8 | 64/- | | |

## PLASTERER.

| | | s. | d. |
|---|---|---|---|
| Render, float and set in lime and hair | per yard sup. | 2 | 4 |
| Do. Do. Sirapite | " | 2 | 7 |
| Do. Do. Keen's | " | 3 | 7 |
| Add sawn lathing | " | 1 | 7 |
| Add metal lathing | " | 2 | 6 |
| Portland cement screed | " | 2 | 2 |
| Do. plain face | " | 3 | 3 |
| Mouldings in plaster | per 1 girth | 0 | 1½ |
| One-and-a-half granolithic pavings | per yard sup. | 5 | 9 |

## GLAZIER.

| | | | |
|---|---|---|---|
| 21 oz. sheet glass | per foot sup. | | 8 |
| 26 oz. Do | " " | 1 | 0 |
| Obscured sheet | " " | 1 | 1 |
| ¼ in. rolled plate | " " | 0 | 9 |
| ¾ in. rough rolled or cast plate | " " | 0 | 10½ |
| ¼ in. wired cast plate | " " | 1 | 4 |

## PAINTER.

| | | s. | d. |
|---|---|---|---|
| Preparing and distempering, 2 coats | per yard sup. | 0 | 3 |
| Knotting and priming | " " | 0 | 7 |
| Plain painting 1 coat | " " | 0 | 9 |
| Do. 2 coats | " " | 1 | 2 |
| Do. 3 coats | " " | 1 | 9 |
| Do. 4 coats | " " | 2 | 4 |
| Graining | " " | 2 | 3 |
| Varnishing twice | " " | 1 | 9 |
| Sizing | " " | 0 | 3 |
| Flatting | " " | 0 | 7 |
| Enamel | " " | 1 | 1 |
| Wax polishing | per foot sup. | 0 | 6 |
| French polishing | " " | 1 | 2 |
| Preparing for and hanging paper | per piece | 2/-to | 4/ |

* These prices apply to new buildings only. They cover superintendence by foreman and carry a profit of 10% on the prime cost without establishment charges. A percentage of 11 should be added for Employers' Liability and National Health and Unemployment Acts and from 1s. 6d. per £100 for Fire Insurance. The whole of the information given on this page is copyright.

# TENDERS

Communications for insertion under this heading should be addressed to "The Editor," and must reach him not later than Tuesday evening.

* Denotes *accepted*. † Denotes *provisionally accepted*. § Denotes *accepted subject to modifications*. ‡ Denotes *recommended for acceptance*.

AYLESBURY.—Repairs, painting, and decoration to the Council Houses at Wendover, for the R.D.C. Messrs. Taylor & White, AA.R.I.B.A., architects, 7, Bourbon-street :—

| | |
|---|---|
| *H. Wood, Wendover | £434 5 |

BALLYNEETY.—Repairs to the Courthouse, for the Limerick C.C. :—

| | |
|---|---|
| J. Ryan & Sons | £1,104 |
| *J. Gleeson | 687 |

CORK.—Repairs to 28 cottages, for the R.D.C. :—

| | |
|---|---|
| *M. O'Connell | £524 |

BARKING TOWN.—Erection of welfare centre for U.D.C. :—

| | |
|---|---|
| ‡W. J. Cearns | £522 |

BATH.—For erection of 36 non-parlour houses at Englishcombe Park, for the T.C. Mr. Alfred J. Taylor, Architect, 18, New Bond-street, Bath :—

| | |
|---|---|
| J. Long & Sons, Ltd. | £16,460 |
| Coles Bros., Ltd. | 16,020 |
| Button & Greenham (five pairs only) | 4,829 |
| *F. Toogood & Sons | 14,429 |

BELFAST.—Additions to Strand Public Elementary School, Connsbrook-avenue, for the E.C. Mr. W. G. Davies, A.R.I.B.A., Education Architect :—

| | |
|---|---|
| *Thornbury Bros., Ltd., Belfast | £8,699 |

BIRKENHEAD.—High level steel tank at reservoir, for T.C. :—

| | |
|---|---|
| *Francis Norton & Co., Ltd., Garston, Liverpool | £5,100 |

BISHOPS STORTFORD.—Twenty-two houses at Dunmow-road, for the U.D.C. Mr. R. S. Scott, engineer and surveyor :—

| | |
|---|---|
| R. Jeffs, Letchworth, Herts | £13,156 0 0 |
| Charles Chapman, Standon, Herts | 12,922 0 0 |
| J. L. Glasscock & Son's Succrs., Bishop's Stortford | 12,513 15 10 |
| E. Markwell, Bishop's Stortford | 11,491 15 6 |
| *F. Cannon & Sons, Bishop's Stortford | 11,383 7 3 |

BLACKBURN.—Twenty-six houses and 16 flats on the Brownhill Housing estate, for the Corporation. Plans by Mr. A. T. Gooseman :—

| | |
|---|---|
| *W. Edmundson & Son, Blackburn. | |

BOLSOVER.—Forty-six houses in Chesterfield-road, Shuttlewood, for the U.D.C. Mr. S. Hoten, surveyor :—

| | |
|---|---|
| *Cooper & Walker, Bolsover— | |
| 26 Non-parlour | £420 |
| 20 Parlour | 470 |

BOURNEMOUTH.—Electric lighting at the hospital, for T.C. :—

| | |
|---|---|
| *Messrs. Aish & Co. | £2,196 |

BRADFORD.—Eight houses at Parkside-road, for the Bradford Co-operative Society, Ltd. :—

| | |
|---|---|
| *H. Rae, Bradford. | |

BRAMHALL.—Station buildings and extensions to platforms for the L.M.S. Rly :—

| | |
|---|---|
| *S. & J. Smethurst, Oldham. | |

CASTLEBLANEY.—Sanitary annexes, for the Monaghan Co. Board of Health :—

| | |
|---|---|
| *P. Mulholland, Carrickmacross | £1,230 10 |

CASTLEFORD.—For 28 sanitation conversions in Duke-street, Wellington-street and Ings-lane, for the U.D.C. Mr. H. V. Slayton, surveyor :—

| | |
|---|---|
| *J. L. Rodgers & Son | £233 2 6 |

CHELMSFORD.—Storekeeper's office, stores and other building works at the depot in Manor-road, for the T.C. Mr. E. J. Miles, engineer :—

| | |
|---|---|
| W. J. Cearns, London | £2,945 0 |
| F. J. French, Chelmsford | 2,280 10 |
| Cheat & Sons, Chelmsford | 2,275 0 |
| *H. Potter, Chelmsford | 2,233 0 |

COLNE.—Railings and gates required in connection with the construction of Shaw-street, for the Corporation :—

| | |
|---|---|
| *Bayliss, Jones & Bayliss, Wolverhampton | £459 11 5 |

CONGLETON.—Additions to the Central Bakery, for the Congleton Co-operative Society, Ltd. Mr. J. H. Walters, architect, Moody-street :—

| | |
|---|---|
| Co-operative Wholesale Society, Ltd., Manchester | £1,388 |
| James Standeven, Congleton | 1,249 |
| *T. & E. Cooke, Congleton | 1,220 |

CROYDON.—Sub-station, Addiscombe-road, for the C.B. :—

| | |
|---|---|
| Grace & Marsh, Ltd., Croydon | £1,120 0 |
| R. Mansell, Croydon | 1,048 0 |
| D. Waller, Croydon | 900 0 |
| *E. H. Smith, Croydon | 900 0 |
| Truett & Steel, Ltd., Thornton Heath | 828 10 |

CROYDON.—Sub-station, Denning-avenue, for the C.B. :—

| | |
|---|---|
| Grace & Marsh, Ltd., Croydon | £310 0 |
| R. Mansell, Croydon | 275 0 |
| E. H. Smith, Croydon | 240 0 |
| *D. Waller, Croydon | 220 0 |
| Truett & Steel, Ltd., Thornton Heath | 212 10 |

CROYDON.—Concrete wall at Mitcham-road cemetery, for the C.B. :—

| | |
|---|---|
| ‡G. E. Everitt & Sons, Ltd., Croydon | £2,254 |

CROYDON.—Child Welfare and School Clinic, Lodge-road, for the C.B. :—

| | |
|---|---|
| W. Smith & Sons | £7,071 17 |
| J. Crewdson | 7,081 11 |
| J. A. Pettit & Co. | 6,903 10 |
| H. T. Blandford | 6,790 0 |
| Truett & Steel, Ltd. | 6,789 0 |
| W. Akers & Co. | 6,724 0 |
| E. H. Smith | 6,589 0 |
| Grace & Marsh, Ltd. | 6,546 0 |
| *J. Elliman & Son, Ltd. | 6,330 0 |

(All of London.)

CROYDON.—Certain external and internal work at the Central Public Baths, for the C.B. :—

| | |
|---|---|
| *G. E. Everitt & Sons, Ltd. | £417 5 |

DUBLIN.—Alterations and improvements to the Metropolitan District Courts, for the Commissioners of Public Works :—

| | |
|---|---|
| *G. W. Scott & Co., Dublin. | |

DUNMOW.—Council school, for the Essex E.C. :—

| | |
|---|---|
| *T. A. Goodey | £8,250 |

EASTBOURNE.—100 parlour and 100 non-parlour type houses, for the T.C. :—

| | |
|---|---|
| ‡J. Knox. | |

(Subject to M.H. approval.)

GELLYGAER.—For (*a*) 50 houses at Bargoed, and 50 houses at Hengoed, for the U.D.C. Mr. P. Jones Williams, architect :—

| | | |
|---|---|---|
| (*a*) | *F. & R. Lewis, Bargoed | £25,813 6 8 |
| (*b*) | *Evan James, Ystrad Mynach | 25,140 0 0 |

GREASBROUGH.—Twelve "B" type and 18 "C" type houses, and roads and sewers, for the U.D.C. Mr. J. Totty, architect, Moorgate-street, Rotherham :—

| | |
|---|---|
| *Thomason & Co., Broom-road, Rotherham—12 "B" type houses | £5,892 |
| *Robert Snell & Sons, Ltd., Station-road, Rotherham—18 "C" type houses | 8,100 |

GRIMSBY.—Houses, for the C.B. :—

| | |
|---|---|
| *E. E. Dale, Cleethorpes (12 non-parlour) | £5,365 11 0 |
| *F. F. Steel, Grimsby (13 non-parlour) | 5,857 9 4 |
| *Thompson & Sons, Grimsby (8 non-parlour and 4 parlour) | 5,638 0 0 |
| *F. F. Steel, Grimsby (4 parlour) | 1,971 17 5 |

GRIMSBY.—Twelve parlour houses, for the C.B. :—

| | |
|---|---|
| *Thompson & Sons, Grimsby | £5,832 |

GUILDFORD.—Improvements at the depot, for T.C. :—

| | |
|---|---|
| Tribe & Robinson | £3,119 |
| R. Smith & Sons | 2,880 |
| *H. Ashendon | 2,390 |

HORNSEY.—Sixty-five cottages in Everington and Hill-roads, Muswell Hill, for the T.C. :—

| | |
|---|---|
| *Rowley Bros. | £34,600 |

LEEDS.—Painting at Seacroft Hospital, for T.C. :—

| | |
|---|---|
| *Oates Bros. | £1,027 4 6 |

LEEDS.—Painting at Killingbeck Sanatorium, for T.C. :—

| | |
|---|---|
| *Oates Bros. | £668 15 6 |

LEIGH.—New wards for women and children and nurses' home, for the Governors. Messrs. J. C. Prestwich & Sons, architects, Bradshawgate. Quantities by architects :—

| | |
|---|---|
| J. Dickenson & Co., Ltd., Bolton | £26,225 |
| E. Marshall & Sons, Ashton-under-Lyne | 25,639 |
| J. Gerrard & Sons, Swinton | 25,020 |
| W. Peak & Co., Ltd., Warrington | 24,795 |
| J. Wainwright, Leigh | 24,750 |
| J. Partington & Co., Ltd., Manchester | 24,750 |
| J. & G. Seddon, Little Hulton | 24,700 |
| W. Townson & Sons, Ltd., Bolton | 24,585 |
| J. Boydell & Sons, Leigh | 24,478 |
| Wilson & Sons, Wigan | 23,959 |
| J. Cocker, Ltd., Walkden | 23,600 |
| G. Moss & Sons, Ltd., Leigh | 23,531 |
| A. E. Prescott, Leigh | 23,461 |
| Massey Bros., Wigan | 23,375 |
| E. Taylor & Co., Littleborough | 23,000 |
| *T. Collier & Sons, Ltd., Leigh | 22,667 |

LLANDUDNO.—Additions to golf house at Maesdu, for U.D.C. :—

| | |
|---|---|
| Spiers, Ltd., Glasgow | £1,798 |
| Ginger Lee & Co., Manchester | 1,575 |
| *Humphreys, Ltd., Knightsbridge | 1,367 |

LLANDUDNO.—Erection of houses, for U.D.C. :—

| | |
|---|---|
| *Lloyd Jones & Co., Wallasey (19) | £12,906 |
| *W. Dobinson & Son, Llandudno (10) | 7,071 |
| *Lloyd Jones & Co. (12) | 5,756 |

LONDON.—Mess-room block at Hammersmith car shed, for the L.C.C. :—

| | |
|---|---|
| H. Kent | £2,485 |
| W. J. Maddison, Ltd. | 2,398 |
| W. Lacey | 2,361 |
| W. H. Cooper & Son | 2,098 |
| *Messrs. W. J. Dixon & Son | 2,093 |

(All of London.)

The architect's comparable estimate amounts to £2,100.

LURGAN.—Cottages in various places, for the R.D.C. :—

| | |
|---|---|
| *D. M'Cullough, Portadown (8) | £3,111 |
| *J. Sweeney & Son, Lurgan (2) | 767 |
| *W. Callen, Tanderagee (2) | 794 |

MACCLESFIELD.—Municipal offices on the Old Roe Buck site, Union Gateway, for the C.B. The Borough Surveyor :—

| | |
|---|---|
| *G. Roylance & Co., Ltd., Macclesfield | £5,590 |

MANCHESTER.—Alterations at Greenwood-street, for the purpose of an electricity sub-station, for the T.C. Messrs. C. S. Allott & Son, civil engineers :—

*Builder's work*—

| | |
|---|---|
| *C. H. Normanton & Son, Manchester. | |

*Steelwork, &c.*—

| | |
|---|---|
| *Lambourne & Co., Ltd., Manchester. | |

NEWBURGH.—For various trades in connection with the erection of a clubhouse. Messrs. E. L. Williamson, architects, 207, Union-street, Aberdeen. Quantities by architects :—

| | |
|---|---|
| **Carpenter*—W. Auld, Ellon | £134 |
| **Plumber*—J. Leslie, Ellon | 104 |

NEWCASTLE.—For (*a*) 84 houses on the Slater's Quarry site, (*b*) 150 houses in concrete on the Walker housing estate, (*c*) 300 concrete houses on the High Heaton housing estate, for the T.C. :—

| | | |
|---|---|---|
| (*a*) | T. Lumsden | £38,200 0 0 |
| (*b*) | Alex. Anderson | 76,536 0 0 |
| (*c*) | J. S. Hetherington | 151,056 12 11 |

NEWRY.—Forty-two houses, for the U.D.C. Mr. Charles Blaney, Town Surveyor, Newry, architect for the scheme. Quantities by Mr. S. C. Hunter, Quantity Surveyor, Belfast :—

| | |
|---|---|
| Jas. Hogg & Sons, Belfast | £24,982 0 0 |
| M'Roberts & Armstrong, Belfast | 24,973 7 6 |
| Thos. McKee, Ltd., Belfast | 23,141 17 11 |
| Collen Bros., Portadown | 21,521 0 0 |
| McAuley & McElroy, Belfast | 20,167 9 6 |
| Jas. Wilson & Sons, Warrenpoint | 20,121 17 11 |
| T. McDonald & Son, Dundalk | 20,077 0 0 |
| J. & R. W. Taggart, Belfast | 19,574 0 0 |
| Felix G. O'Hare, Warrenpoint | 19,421 18 3 |
| Jas. Miskimmon, Belfast | 19,169 13 0 |
| Jas. P. Graham, Dromore | 18,124 11 6 |
| *P. McKenna & Sons, Armagh | 17,733 19 0 |

NORWICH.—Superstructure of factory, St. George of Colegate, for Messrs. S. L. Witton, Ltd. Mr. J. Owen Bond, Lic.R.I.B.A., architect, 29, Castle Meadow :—

| | |
|---|---|
| J. Youngs & Son, Ltd., Norwich | £17,447 |
| Thomas Gill & Son, Norwich | 16,987 |
| R. G. Carter, Drayton | 16,867 |
| J. Anderson & Son, Norwich | 16,680 |
| *R. J. May, Trowse | 16,300 |

NOTTINGHAM.—Branch library and reading room at Vernon Park, Old Basford, for the T.C. Messrs. Sutton & Sons, architects, Albion Chambers, Kingstreet :—

| | |
|---|---|
| R. Hustwayte, Nottingham | £10,450 |
| Hopewell & Son, Basford | 10,380 |
| Pillatt & Son, Nottingham | 10,300 |
| H. Brackenbury, Nottingham | 10,105 |
| Bosworth & Lowe, Nottingham | 9,843 |
| W. Appleby, Nottingham | 9,400 |
| T. Bow, Nottingham | 9,200 |
| Maule & Co., Nottingham | 9,355 |
| Fish & Son, Nottingham | 9,155 |
| Long & Son, Nottingham | 9,080 |
| *Evans & Son, Nottingham | 8,600 |

PENRITH.—Tunnel and other works for the Gas and Water Department, U.D.C. :—

| | |
|---|---|
| *A. Monk & Co., Irlam | (revised) £7,000 |

PORTSMOUTH.—Garage at Victoria-road, South. Messrs. Thomas & Wilkins, architects, 30, Landport-terrace, Portsmouth :—

| | |
|---|---|
| Jno. Croad, Portsea | £1,530 0 |
| John Lay & Co., Portsmouth | 1,496 0 |
| John Harding, Southsea | 1,255 0 |
| F. J. Privett, Southsea | 1,200 0 |
| F. Bevis, Ltd., Portsmouth | 1,150 0 |
| A. E. Porter & Son, Portsmouth | 1,148 0 |
| *Chris. Coles, Portsmouth | 1,088 10 |

PRESTON.—Alterations and additions to the Fever Block, for the C.B. :—

| | |
|---|---|
| *J. Turner, Preston | £382 |

PRESTON.—202 houses in Miller-road, the Arterial-road and Ribbleton-avenue, for the T.C. :—

| | |
|---|---|
| *Selwood, Lloyd & Co., Ltd., Birkenhead | £94,852 9 6 |

(Subject to M.H. approval.)

SHIPLEY.—Plasterer's work at smallpox hospital for U.D.C. :—

| | |
|---|---|
| *H. & A. Billington | £550 |

ST. MARTINS, SALOP.—For alterations and additions to the "Cross Keys" Inn, for Messrs. F. W. Soames & Co., of Wrexham. Mr. J. H. Swainson, architect, 1, High-street, Wrexham :—

| | |
|---|---|
| Wm. Griffiths & Sons, Ellesmere | £1,672 19 |
| Harold Davies & Co., Wrexham | 1,775 0 |
| J. Barlow & Sons, Oswestry | 1,775 0 |
| *Major Wm. Felton, J.P., Oswestry | 1,634 10 |

DOVER.—Sixteen houses on the Edred-road site, for the T.C. :—

| | Sewers and Drains. | Bricks. | Concrete slabs. | Lean concrete blocks. |
|---|---|---|---|---|
| E. Stokes | £297 .. | £6,190 .. | £6,130 .. | £6,100 |
| Operative Builders & Decorators, Ltd. (Birchington) | 405 .. | 6,890 .. | 6,585 .. | 6,680 |
| Hayward & Paramor, Ltd. | 276 .. | 8,354 .. | 8,152 .. | 8,055 |
| *G. Lewis & Sons (Dover), Ltd. | 287 .. | 6,064 .. | 5,680 .. | 5,872 |
| J. S. Smith & Co. (Broadstairs) | 395 .. | 6,860 .. | 6,569 .. | 6,669 |

SMETHWICK.—Buildings of Holly Lodge girls' school, for the E.C. Mr. G. Randle, architect :—

*W. Jackson, Langley Green..... £31,400

STOKE-ON-TRENT.—Erection of 700 houses at the Meir and the Abbey, Hanley, for T.C. :—

*Samuel Gee & Sons, Ltd., Derby .. £329,000

STOKE-ON-TRENT.—For erection of a convenience on land adjoining Hanford Bridge, Stone-road, for the Corporation. The Borough Surveyor, Town Hall :—

*H. Stanley (Newcastle), Ltd., Newcastle, Staffs.

TYLDESLEY.—Public conveniences, for the U.D.C. Mr. F. E. Jones, surveyor :—

*James Cocker, Ltd., Walkden ..... £1,295
T. Collier & Sons, Leigh ..... 1,286

UXBRIDGE.—House, for W. J. Killingback. Mr. E. Meredith, A.R.I.B.A., architect, of Goodmayes :—

Gates & Son, Dalston ..... £1,660
H. J. Gower, Ltd., Cheapside ..... 1,540
*Berry & Blake, Harlesden ..... 1,340

WAKEFIELD.—For erection of 61 houses at Netherton, for the R.D.C. :—

*Builder*—F. Clarke & Son .... £4,144 10 0
*Joiner*—Pease & Ibbitson .... 2,380 0 0
*Plumber*—S. Atkinson, Ltd. .. 944 16 7
*Slates*—Shevill & Foster ..... 468 3 4
*Plasterer*—H. Sanderson ..... 673 18 0

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